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ORIGINAL ARTICLES.

A STUDY OF THE EFFECTS OF POISONED AIR, IN THE CAUSATION OF INEBRIETY.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5 8, 1894.

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The statement, so often repeated, that inebriety is the result exclusively of alcohol is not true. Careful studies of individual cases indicate a great variety of complex causes which are unrecognized in most cases. Inebriety is a symptom in many instances, which disappears when certain causes are removed. In certain cases, the ejection of a tapeworm has been followed by total abstinence of the person. The removal of a spicula of bone pressing on a nerve; the trephining of the skull; the operation and removal of a stricture; the curing of hemorrhoids; constipation; diarrhea and many other conditions, have been followed by recovery from inebriety. Conditions of exhaustion, anemia, poisoning from malaria, and degenerations following acute disease, frequently break out in continuous drinking which subside when these states are removed.

It is also true that alcohol, taken any length of time, will produce degenerations which demand its continuous use. A single excessive use is often followed by a craze for spirits that is a literal inebriety. From a degenerative soil inebriety grows most luxuriantly, and the previous degenerations are intensified to an unknown degree. Sanitary conditions are always influential, and in many cases exercise a marked power over the intensity and duration of the case. Experience shows that a certain number of cases of inebriety recover, from a change of surroundings and living. I have described, in Vol. iv, *Journal of Inebriety*, four cases of persons who always drank near the sea coast, but who had no desire for spirits and did not drink when living in mountain regions. Change of occupation has frequently been followed by complete restoration from inebriety. What conditions and influences in the person and his surroundings exist in such cases are at present unknown.

The influence of poisoned air is seen in many ways by all observers. How far it may be an exciting or predisposing cause in disease is not always clear. In certain cases very marked results follow the improvement of aeration. In the two cases following are embodied some very significant hints which suggest a line of study for sanitarians and others, that is comparatively new:

A professional man of ability, temperate and healthy in every way, moved to New York city and occupied a fashionable house four rooms deep in a rich section of the city. He slept in one of the middle rooms without sunlight, and only ventilated from the other rooms opening on the front and rear of the house. He worked very hard mentally and lived regularly, avoiding all excesses. The next year he became anemic, suffered from insomnia, and began to use spirits to encourage sleep. A year later he was considered an inebriate and drank to excess every night. He suffered from chronic gastritis, the urine was loaded with albumen, and his mind was on the border of delirium all the time. He was in bed for days at a time, in a dark room with heavy curtains about and gas burning all the time. A closet near gave a suspicious odor, and great anxiety was manifest to avoid a draft of air, and the possibility of acute pneumonia. His pulse was 120, temperature 100, body bathed in perspiration; insomnia and semi-delirium was present most of the time. Milk punches, brandy and eggs, morphia and other drugs, also alcoholic baths were given freely. I advised that he be taken to the country and placed in a large sunny room with southern exposure and all spirits withdrawn; baths every day, foods and salines and massage. Recovery followed rapidly, and in three months he went back to his office retaining his residence in the country. Two years after he was a vigorous temperate man doing business in the city and living in the country. The inebriety in this case was largely due to the poisoned air of the sleeping rooms; the rapid recovery and subsequent good health in a well ventilated house confirms this. It will occur to any one how clearly these sources of imperfect aeration would produce general disturbances of the functional activities, for which the narcotic of alcohol would be most grateful.

In five years I have been called twice to advise concerning inebriates in a rich home of an aristocratic section of New York city. In both cases, father and son occupied very ill-ventilated sleeping rooms, and suffered from insomnia and general weakness, for which spirits were ordered as a tonic and medicine. The father died and the son became melancholy and was sent to an insane asylum. The history seemed to point to some close connection between the bad air of his home and the first use of drinking.

Two young men, temperate and well, left their country home to become coachmen in New York, sleeping in a bad ill-ventilated stable room. They became inebriates and were discharged, returning to the country, recovered, and are now temperate and well.

Many cases of similar character will occur to every one, and while it may be difficult to trace back the origin of the excessive use of spirits to this particular cause, viz., bad air and bad ventilation, there is evidence of a very intimate association and undoubted influence as an active predisposing force.

The early use of spirits in many cases follow states of exhaustion and weakness, and the use of alcohol covers up these conditions, conveying the impression of relief. This physiologic impression is more powerful than theory or reasoning, and readily leads to a repetition of the use of spirits and inebriety. Bad air and bad ventilation always leave the system debilitated, favor auto-intoxications, and the formation of compounds in the blood and tissues that are distinctly poisonous. Alcohol used at this time may bring to the system germs and soil for the culture and growth of still more poisonous states. In all events it brings increased weakness and degeneration with diminished power of resistance.

Inebriates from crowded tenements and basement residences are always more degenerate. Inebriates from homes of wealth, in wealthy sections of cities,

where possible bad ventilation exists, are equally exhausted and worn out. Both of these classes make rapid recoveries in well-ventilated rooms, and seem to have been suffering largely from poisoned air.

Clerks, business men, and persons who have ill-ventilated offices, where they spend many hours each day, are far more inclined to use spirits than others in better surroundings.

A case was reported to me by an eminent New York physician, of a merchant who tried to abstain from all use of spirits at home without success. He worked steadily in his office and lived in a rich house up town, where apparently, every condition of healthy living was present. After several ineffectual efforts to give up the use of spirits, he went out camping in the White Mountain region. In a few days all taste for spirits left him, and for the first time in twenty years he became a total abstainer. On the return to the city he drank again and could not stop. The next season he moved out in the country and all taste for spirits left him. Finally, he gave up his city residence and lives out in the country coming to the city for a few hours at a time, and has become a total abstainer, not having any taste or desire for spirits. It seems most rational to suppose that poisoned air and defective ventilation were the exciting causes of the drink craze in this case. No other condition of surroundings and living could explain his ability to stop drinking in the country and not in the city.

Another incident, well verified, seemed to bring out the same fact:

A delicate, nervous child, supposed to be inclined to consumption, was guarded with extraordinary care against colds and the open air, in a rich city home. At 15 years of age, a strong taste for spirits developed, and at 20 he was an inebriate. His mother died and he was forced to go into the country to live. He became a total abstainer at once, and is now at 26 years a strong temperance man. It would appear that in this case some condition of cell and tissue starvation began from defective aeration, and continued until the surroundings changed.

I think the poison from defective oxidation of the blood, together with imperfect elimination of waste products is a very active factor in inebriety. In all rational treatment, efforts to remove these possible causes should precede all other means of treatment. The continual inhalation of impure and defective air is always followed by the accumulation of poisons, which in many ways unknown, cause reflex nerve disturbances and reactions. The heart contracts more frequently, respiration is accelerated, and elaboration of nutritive material is altered in all the cells of the body. Fatigue, depression and lowered vitality follow. Alcohol at this time is a grateful narcotic, which not only conceals the real condition, but brings increased degeneration with new bacteria formations and diminished resistance to disease. The brain and nervous system suffers as much as any other part of the body although this is not recognized.

The inebriety of any one in poisoned air may be in part or entirely due to this one cause. This can be demonstrated with a very strong probability of correctness. Pauperism, criminality, and the varying degrees of idiocy, with other of the degenerative diseases all are known to originate in a large degree from this source.

We are fast recognizing the fact that diseases of the brain and nervous system are not all the result of mysterious psychical forces. The delirious maniac, the melancholia, or the wild varying alcoholic, all spring from physical causes and conditions that are in many cases as tangible as the germs of typhoid or diphtheria.

The alcoholic or inebriate possessed with the one impulse to use spirits, manifests simply a symptom of some brain condition which seeks relief. The inebriate, as the result of his use of spirits, will neglect all hygienic care and be more or less oblivious to bad poisoned air, bad food, and dangerous environments. Breaking up and changing all these bad surroundings is always followed by an improvement, and if the surroundings and conditions of living can be kept up to a high level of health, restoration will follow, simply by the operation of natural forces. Inebriety means, in every sense, poisoning by many very complex agents, both from without and within. Sometimes these agents originate externally to the body, or within the body, and the use of alcohol is a signal flag of danger, a sign of degeneration going on and a demand for relief.

The workmen in a clock factory, employed in a certain room where enamel was used and the heat kept up to a fixed point, were noticed to become beer and spirit drinkers more than all others. For a long time the men in this work were often discharged for drunkenness. It was noticed that they abstained when employed in other factories at other work. The fact was finally made clear that the ill-ventilated, poisoned air of this room was the factor or real cause of the spirit drinking. By changing the room and alternating the workmen the previous inebriety of this class disappeared.

A case came under my observation in which this fact seemed confirmed:

A poor man had three children born in a crowded tenement house where all the conditions of air and surroundings were bad. They were weak defective neurotics; one was an inebriate. Two other children born later, after he had moved into the country, where the conditions of living were excellent, became vigorous healthy persons. It seemed that the bad surroundings of early life had much to do in causing the defects of the first three children, and the later children were vigorous in a large degree from the better surroundings of early life and living.

The efforts of sanitarians to improve and regulate the surroundings of all classes, also point out the dangers from imperfect aeration, are always very effectual measures to prevent and control the evils of drink. Abundance of pure air at all times and places and no oxygen starvation will raise the vigor of the race and increase the resistance to disease, that will show itself in all disease and mortuary statistics.

The fact I wish to emphasize is that in the causation of inebriety there are always to be found many exact physical conditions, which can be seen and controlled. That oxygen starvation is of far more importance than other supposed causes. No amount of training, culture, religious or secular, can overcome the injury from deficient oxygen and the presence of poisonous gases.

Reforms carried on down in the slums of crowded cities, or in the palace homes of the wealthy, where the air is vitiated and poor are useless. Medical treatment is equally worthless where the victims live in such surroundings. Oxygen nutrition is of equal importance to that of food, and the brain suffers more quickly from deficient air than diminished food supplies. Those who use alcohol are more incapacitated to take up and utilize the oxygen brought to the lungs. The blood cells, by virtue of the absorption of the watery contents from alcohol, are unable to take up the usual amount of oxygen, and hence the tissues are starved in all cases more or less. Every inebriate is oxygen starved, and like the chronic dyspeptic, whose digestion is impaired and unable to utilize the nutrients of the food, he is unable to ap-

propriate the oxygen of the air to meet the demands of the body. Both the dyspeptic and inebriate are anemic for the same reason. Both are starved and suffer from diminished nutrition. The more indigestible the food, the greater the debility of the dyspeptic. The struggle with him is always to procure some food that will be assimilated easily, and a vast number of predigested foods and remedies are on the market to meet this condition. The inebriate, in like manner, grows worse in air that becomes more and more vitiated; venous congestion and many other external hints of defective oxygenation are always present.

The failure of the blood cells to absorb oxygen, and the air to supply the oxygen necessary, are conditions that must be overcome if restoration ever follows. This explains, in some measure, why men in prison who are forcibly kept from spirits for long periods often drink to excess the moment they are liberated. The bad air of prisons has still farther increased the degeneration of the inebriate, and made him more incapacitated for recovery.

The experience of all insane asylums indicate a great diminution of all the acute symptoms of insanity where the inmates can go out into the open air freely. One central principle of all treatment of these obscure brain disorders is to promote the nutrition, not alone by food, but by abundant supplies of oxygen. The sick and wounded in the late war recovered more rapidly in tents than in the best hospital buildings, because the supply of air was better and more abundant. I have known excessive drinkers to recover out on the plains herding cattle, and sleeping in the open air—persons who came from luxurious surroundings, and who had tried various means of treatment without success. There can be no doubt that the increased vigor from pure air was an important factor in the causation.

A lawyer of eminence who drank to excess at regular periods of three months, found by accident that the drink craze was milder and more under his control in a summer house high up in the Catskill Mountains. The drink paroxysm was preceded by excessive irritation several days in advance, during which he would stop all business and go to this place. The house was five miles back from the railroad station; this distance he would walk, and after a sponge bath retire in a large barn room with no windows, if it was summer. The next day would be spent dozing in the open air, heavily clothed, on some high mountain peak. On the third or fourth day all desire for spirits would disappear and he would recover. In the winter he would sleep in an open wood-house, and seemed to crave the stimulus of the open air. For four years this man has been able to remain free from drink, and he is firmly convinced that it is particularly due to the pure air of the mountains. After any special exertion and debility from overwork he goes up to this mountain place and spends a few days entirely in the open air and returns restored.

I have seen many cases where persons who had been inebriates previously, declare that in certain surroundings they could not abstain. A lawyer always drank after trying a case in a certain court room which was badly ventilated; a mechanic drank daily in a certain factory; in another factory of the same class, higher up the stream in excellent surroundings he could abstain. In both cases the impression prevailed that it was entirely due to the different air. How far this is correct it is impossible to determine. This impression is very positive in the minds of many people, and the only tangible reason for it is the previous poor surroundings they have lived in.

Vegetarians and others who have extreme confidence in the power of selected food to prevent disease and lengthen out life, often overlook the value of oxygen and pure air. They fail to recognize the complexities of foods, and the inability at present to understand their relations and values. The air we breathe is far more tangible, and its effects can be studied and realized with more certainty and exactness.

A society of aerationists, who would seek to show how disease could be prevented and life lengthened by always breathing pure air, would do some real work for the elevation of humanity. Specific hunters and reformers will find an open field and unlimited scope for research in the study of the air we breathe and its influence in increasing or diminishing disease. That inebriety is caused by bad air in some cases, and is largely influenced by both good and bad air in all cases, is a fact unquestioned. That in the study of the causes of inebriety and its treatment, the questions of the air and its quality which have been used are of great importance there can be no doubt.

Rational medicine demands a study of all conditions of living and surroundings in the questions of diagnosis; it demands that disease and diseased conditions should be regarded as physical entities, and that causes tangible and preventable be sought and found; then the questions of treatment will rise above the present empiric methods and become an exact science, in which means and measures can be applied along lines of natural laws.

STATE MEDICINE; ITS RELATION TO PATENT MEDICINE.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY SAMUEL P. DUFFIELD, M.D.

DEARBORN, MICH.

At the request of your esteemed President, Dr. Geo. W. Stoner, I have prepared a few notes for your meeting, on which I hope your honorable body will not only take action, but also bring the matter before the appropriate committee of the general body of the ASSOCIATION in such a way that a remonstrance may be forwarded to the Attorney-General of the United States, asking him to rule in the matter and take such steps as will best put a stop to the dangerous and fatal methods of dispensing medicines through the mails or otherwise.

I will, therefore, without any preamble and as briefly as possible, detail the cases which have called forth this paper, and without any appeals or moralizing leave the matter in your hands, feeling sure such a statement of facts will be well weighed and acted upon by your honorable body.

On Sept. 1, 1892, in the city of Detroit, a married lady who had previously been in good health, called for help as she was taken suddenly and seriously sick. She was attended by one of our reputable physicians who soon called one or two others in consultation. She was taken with spasms and they increased rapidly and in greater severity up to the time of her death. As these physicians had not administered any drug which could have provoked such a state of affairs, and as they were at a loss to determine what was the cause of death, I was consulted, being the health officer of the city at

that time. At their request I viewed the body and heard their descriptions of the form of convulsion or spasm which resulted in her death, and without giving you the reasons in detail, I decided that she had died of poisoning by strychnia or its salts. One of my consultants took exception to my opinion, and while the others indorsed it as the only plausible cause of death, I deferred acting in the matter until they had made a post-mortem and assured them that should they not find any cause of death in the body, I would myself in my private laboratory make a full toxicologic analysis of the organs of the body (the stomach and liver and see if we could in any way solve the mystery which seemed to shroud the cause of death. On Sept. 2, 1892, about midnight one of the physicians brought me the stomach in a clean Mason jar tightly sealed, with the request to proceed with the matter as I judged best.

On examination of the stomach I found it to contain some grapes and some cake, a light supper, which was only partially digested.

A carefully conducted analysis enabled me to detect the presence of the alkaloid strychnia and the separated poison was used to produce the characteristic spasms in a *rana esculenta*, common frog, and resulted in his death. I had in addition all the chemical tests which identify and detect strychnin. As soon as I had arrived at this point, I communicated the fact to the coroner who began the legal investigation of the matter. The detectives were set at work to find where the poison had been bought and by whom. They could not find that she or her husband ever purchased strychnia from any drug store and it was evident that it had not been prescribed by any of the physicians.

I asked the husband who seemed to feel that a cloud hung over him, and as if my detection of the strychnia in his dead wife's stomach was a false accusation of him, not to say casting reflections also upon his wife, to bring me all the medicines which were in the house and of which she had partaken. Medicine after medicine was analyzed without finding any poison, and one daily paper even opened its columns in a tirade against the health officer for suggesting such an idea. I still insisted the woman had been poisoned. One day the husband brought me some ovoid, pink, sugar-coated pills put up in a wooden, turned box with the remark: "I do not suppose, Doctor, that these will do you any good. I know she took these as a tonic and they did her good." I began the analysis and had enough strychnia in one pill to meet all the definite chemic reaction, and another pill produced the physiologic action upon a frog. The pill contained a salt of iron and strychnia and the mystery of her death was solved.

The coroner's verdict was that the woman had come to her death by taking these pills probably in larger doses than intended, not knowing the contents to be poisonous.

The wrapper and directions of this patent medicine gave no intimation that it contained such a potent alkaloid. It has been and now is advertised through the daily papers as doing more than any doctor's prescription could do. (We admit this for it killed this woman.)

The proprietor of this medicine called upon me, bearing letters of introduction to me from two prominent wholesale drug houses of Detroit, assuring me he was a gentleman and worthy to be treated as such, and that he desired to have a private consultation with me. In that private consultation he stated he had built up a large trade which was bringing in a good revenue and that this analysis I had made would hurt him severely, and intimated that I was in danger of getting prosecuted. I replied that there was a higher moral duty I had to perform and that I felt no fear. He said that they did not put it in such quantity as to be poisonous in the dose assigned. But he admitted that they did not state these pills contained strychnia. I understand he has sold out for a handsome sum to another firm who still manufacture. This ASSOCIATION could do no better work than to try and have the contents of these drugs printed upon them, and the Patent Office should not issue a patent to *any one* for a general public medicine which contains such potent alkaloids as strychnin, aconitin, atropin, colchicin, pilocarpin, etc.

The second case has not resulted in physical death but its bearing is of such a character that I think you will admit it produces a moral gangrene which leaves the patient in worse condition sometimes, than death.

Of late, these men who benefit humanity (at $10 a case to start with), have been using the mail for their deceptions, and I was a committee of one, detailed to investigate. I made the investigations and analyses which proved that the main drugs they used were lupulin, for quieting nervous conditions; pills containing aloes and iron, and a sugar-coated pill of phosphorus which was to restore "lost vitality"; they did not say anything about "lost morals."

Their circulars, etc., I put up a *straw man* to get, and I give them to you as Exhibit A, and Exhibit B. They are for the committee to read and act upon, not to be reproduced in print.

By addressing the Attorney-General he was induced to refuse them the use of the mails, and for a short time we had them shut out of the mails. I understand lately that Roberts & Compton, those who sent out the sugar tablets, went to Washington with their attorney and admitted they had not been doing right and now proposed to resume upon the plan of first getting their patient and then prescribing for him. I understand that they have spent nearly $2,500 and are about to start again. The arch fiend,—Page, whose circulars are in the exhibit, encouraged by the success of the sugar tablets, made an effort and has had his order revoked, and his old advertisement is again seen in the papers.

The Attorney-General for the Post Office Department took the ground that their method of doing business was not that of honest institutions, without reference to the remedy, and on that basis issued an order. The magnitude of the business will surprise you. Page alone, has cleared it is stated $100,000, starting from nothing.

Just what point or argument was used to induce the Attorney-General to rescind or suspend the order, I am unable to say. There is now a bill before the committee in Congress looking to the exclusion of all such advertisements, but these men in this lucrative business have, it is said, a powerful lobby at Washington and I should fear unless our ASSOCIATION takes hold and memorializes Congress that the bill will never get out of the committee. Perhaps the better way would be to have the AMERICAN MEDICAL ASSOCIATION through the Section on State Medicine appoint a committee to look after the committee in Washington.

Is it not a deplorable state of affairs, when the Patent Office issues the right to manufacture and sell medicines so powerful that they work death to an innocent citizen, and when the Post Office Department becomes a common central sewer into which such filthy advertisements of a medical deception are freely poured without let or hindrance? "*Amicus Plato sed magis amica veritas.*"

International Courtesy.—Dr. William Osler, of the Johns Hopkins, in speaking on behalf of the visitors at the recent meeting of the British Medical Association, said that he hoped that consideration would be given to the idea of holding a meeting of the Association at Montreal in the course of a year or two. They would, he assured them, receive in his native town as warm a welcome as had been accorded to the members of the British Association for the Advancement of Science.

THE PHYSICIAN AND THE STATE.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY CHAS. E. WINSLOW, M.D.
ALBUQUERQUE, NEW MEXICO.

"An ounce of prevention is worth a pound of cure," is a truth that can not be gainsaid. The Great Physician had that in view, when from Sinai's Mount he gave Moses the sanitary laws that were to govern the Hebrew children.

If laws for public health were necessary, then, how much more are they needed now. With the great advance in intelligence, ways of living have changed which call for better sanitary care. The onward march of civilization has blotted out the plague and pestilence of olden times, but with this new civilization have come new diseases, which must be controlled by the best scientific methods of the times. A large amount of the sickness that falls to the lot of humanity is preventable. The value of preventive medicine has been repeatedly proved. More people die of disease caused by neglect of the laws of health than by war.

"A little fire is quickly trodden out, which being suffered, rivers can not quench." From squalid surroundings may spring diseases that will spread, destroying thousands of lives; epidemics that come as punishments to communities for neglecting the rules of health must be stamped out at once. Many sin through ignorance, but thinking men are beginning to realize that the question of preserving the public health is one of the first duties of a civilized people. Let an army threaten to invade our shores, and the people with hearts aglow with patriotism will spring to arms, offering money and lives to their country.

When danger of pestilence and death threaten us, then should we rise in our patriotic might and drive it from our land. The best way to prevent war is to be prepared for war. The best way to prevent disease is to be prepared for disease. Then build the bulwarks and arm for the invasion before an epidemic, carrying destruction and death, like a mighty army sweeps down upon us.

Few men appreciate what good sanitation means. Public attention must be awakened to the knowledge that sanitation means less sickness and longer life, that it preserves health and prevents disease, that unhealthy men make an unhealthy nation. A ruined castle may be picturesque but a ruined man, temple of God, is a sad spectacle. The glory of man is his strength, and to preserve that strength is a glorious victory.

Man owes certain duties to man that must be acknowledged. He did not make himself, but he can help preserve what God has given him. Every man and every class of men has a niche to fill in this republic. The business men of America are planning and striving to better the financial condition of the nation; the mechanics and laboring men are working for the physical comfort of our homes; the pastors, on sanitary principles, attempt to prevent their flocks from suffering the burning fevers of hell; the lawyers are busy tangling and untangling the complicated affairs which mankind is heir to, while the physicians aid them all, working for the "greatest good to the greatest number." Some one has said "public health is public wealth." Show to the business man that disease obstructs business, and sacrifices lives that are valuable to the State, prove to him that sanitary reform will save money and lives and he will listen to you.

The American people, notwithstanding Barnum to the contrary, do not want to be humbugged. They are seekers after truth, though having been deceived so often they are inclined to be suspicious. Come to them in an honest way with honest figures.

The Government must be taught that it is economy to keep the people of a community in good health, for though an epidemic may be confined to one section of the country, its effects are felt upon the life and commerce of the whole nation.

It is a fact that healthy nations are wealthy nations, proving that public health is of great commercial value. This being true, is it not worthy of a place in the Cabinet?

To build a substantial structure we must commence with a good foundation; to build up a nation of strong healthy people, we must begin with the children. There are hundreds of thousands of youth in this land of ours whose minds are being filled with knowledge. What an opportunity to sow the right kind of seed! Then "what will the harvest be?" Give them common sense text-books that teach them the true way to preserve health. Do not cram their little brains full of all the hard names in anatomy and physiology. Make the study of sanitary science simple and attractive. Mix it all through the education of the youth, weave and interweave the principles of hygiene in the studies until the young men and maidens are saturated with ideas of how to preserve their health. Then they will exert an expanding influence that will be felt, not only in the present generation, but by the millions to come. Body and mind must be developed together. Have a department of public health in every college, that while the youths are growing in intellect, care will be taken that they develop strong healthy bodies.

We, as a nation, need to exercise the greatest care in regard to our sanitary laws, on account of the thousands flocking to our shores coming as they do from every clime, many being the very scum of other countries, coming from districts tainted with epidemic disease, which only slumbers waiting to be awakened.

The study of public sanitation brings the physician into closer relation with the masses. The people must be taught. Often those who are considered authority on other subjects are ignorant in regard to public health. The physician must be the educator; then to the work. "Be instant in season and out of season," "here a little, there a little," shoulder to shoulder, pressing forward to the "mark of our high calling," elevating the medical profession, and raising the standard of the people in general, instilling into their minds the laws of good health until in every nook and corner, hovel and mansion, Hygeia reigns supreme.

Every physician should be a wise impulse to enthuse the people along the line of sanitation. It is the duty of every true physician to prevent as well as to cure disease. While the duties of curative medicine give the active practitioner time for little else, yet his influence dropped here and there will be seed that may find root in good soil and bring forth an hundred fold.

Medical intelligence has produced great changes in

medicine, and necessity has been a great stimulus in seeking after truth. In the wonderful advance of the science of curative medicine, we must not forget the science of preventive medicine. While the causes of disease may be difficult to discover, the conditions favoring disease are known. Every citizen has the same right to be protected from disease as from violence.

It is unjust to endanger health and life by defective drainage, impure water and poor ventilation. The physicians are the conservators of the public health. They can advocate the best sewerage system, and quietly produce a public sentiment in its favor, impressing upon the communities that impure water is detrimental to good health.

The medical men came into existence because of the Macedonian cry for help, and they must accomplish the object for which they came, working earnestly and wisely to free man from sickness and suffering. Let us put on the whole armor and fight the invasions of the enemies of mankind,—standing between the people and danger, protecting our homes and our native land; ever in the front, fighting boldly all that tends to lower the vitality of our nation, aiding all that will better the condition of men, living so that in dying we leave behind us the imprints of our lives in a more healthy, moral and stronger race of men. Let us be thinking men, keeping up with the onward march of civilization, not hinderers but helpers in progress, making our profession grander and nobler for having been one of the number.

To-day we can advance new ideas in regard to medicine without fear of torture or imprisonment, but we must carefully weigh our theories, and before giving them to the public, be sure that the facts obtained from our investigations are accurate, for "human experience proves that all false systems fail," and we can not afford to be crushed in the failure. We may be called visionary, but if we are in the right we shall expose some false and evil ideas.

A true physician is a reformer in his profession, always searching after truth, never knowingly aiding an injustice, nor endangering another's health. To allow a preventive disease to come, and make no cry of warning, is an injustice to the people.

The relation between the physician and public can not be too closely connected. The masses look to the physician as authority on medical knowledge. He who professes to try to prolong human life and ameliorate the sufferings of humanity, should be well qualified to advise in regard to all rules of health.

The public must be protected from medical impostors. Medicine must be elevated by the medical man alone. It is his duty to protect the ignorant from the quack, for ignorance and quackery go hand in hand, and like the "blind leading the blind both will fall into the ditch."

To protect the state, the state must protect itself by making and enforcing such stringent laws that an uneducated and unprincipled physician will be unknown. While many of our States have fairly good laws they are far from perfect. Let us diligently strive to create a public sentiment electing those to office who favor such laws, and demanding from our law-makers protection for the people. "If, at first we don't succeed, try, try again" until the legislatures, like the unjust judge, grant our request because of our importunity.

Nothing is so important to a nation as public health, and yet our government recognizing the importance of public school and charitable institutions does not realize, as it ought, the necessity of protecting our inhabitants from disease and death. The Government has financially encouraged the experimental study of the diseases of domestic animals, assisting those in that department, until the contagious diseases of animals have been almost stamped out. In agriculture the Government, and nearly every State spend large sums of money in experiments. Not one dollar is spent for experimental study of prevention of disease in the human family.

Is it just to endanger the lives of the American people, when it is well known that whole tribes and races of men have been swept away by epidemics that could have been prevented? No objection can be made to the use of money by the Government in researches that will benefit the nation. To be just to all it should lend its aid to find out why yellow fever, cholera and other epidemic diseases seem to have a preference for one location and not another; why one season of the year and not another; what produces and propagates different diseases and what will control them. Then prevent the spread of disease by official measures. If the improvement and preservation of plant and animal life are important enough to need a representative in the Cabinet, vastly more important is that which prevents sickness, prolongs life, protects homes, uplifts humanity, adds wealth to the state, and is the life blood of the nation.

Human rights, in the name of justice, demand a Secretary of Health.

As we meet here to-day coming from all parts of the nation, casting our mites into the tithing box, exchanging ideas and gathering golden thoughts, laying up a fund from which to draw pleasure and profit, aiding in building up the noblest profession God has given man, let us exert an influence that will grow in power until the nation rouses and "old things pass away and all things become new," expanding "more and more unto the perfect day." Let us press forward, onward and upward, growing broader minded in regard to our views of humanity, true to self and true to state, for:

> "A wise physician, skilled our wounds to heal,
> Is more than armies to the public weal."

A FEW REMARKS ON LEPROSY.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5–8, 1894.

BY H. S. ORME, M.D.

LOS ANGELES, CAL.

Owing to failure in receiving replies to several letters of inquiry and to other pressing demands upon my time, I have been unable to complete the supplement to my former report on leprosy, which I expected to offer at this meeting. I shall, however, add a few facts and observations to what was written four years ago.

Since 1890, evidence has been accumulating in favor of the theory then advanced, that the most important factor in the causation of leprosy is contagion, and it is now generally admitted that it is the only factor deserving serious consideration. The most noteworthy testimony to this effect is the report of the Indian Commission of 1892, based upon in-

vestigations made the previous year. The most important conclusions reached were that leprosy is not kindred to syphilis or tuberculosis, that it is contagious, and that it is not diffused by hereditary transmission.

They also report that the disease is not increasing in India, but apparently slowly decreasing, though no adequate measures of segregation are practiced. The explanation of this paradox is, that the people have long been acquiring a tolerance and resistance on the principle of natural selection and survival of the fittest. There is ample reason to believe that the same principle applies to other diseases. Even during the present generation, syphilis has become milder than it is remembered by some of the oldest now living.

The ravages of smallpox among the Indians of the United States have at times almost swept away whole tribes, during its earliest visitations; but among the natives of New Mexico who are substantially the same race, but who have been almost constantly subjected to its influence more than three centuries, it is so far from formidable that mothers voluntarily expose their young infants in order that they may take the disease and be through with it before they are weaned.

But I do not regard this observation as justifying the let alone method of dealing with preventable diseases of a dangerous nature. There is abundant proof that the plan of segregation will in time cause leprosy to disappear, provided it be enforced (rigorously). Though not carried out with absolute strictness in Europe during the Middle Ages, the results were so nearly perfect that the belief in its contagiousness gradually died out, the restrictions were relaxed, and the re-appearance of the disease in successive generations in certain families of the lowest class led to the theory of inheritance.

In the present period the plan of segregation in Norway and New Brunswick, thongh not enforced with absolute rigor, is causing a gradual diminution of cases, and the same effect has begun in the Hawaiian Islands.

Between 1856 and 1880, the number of lepers in Norway declined from 2,863 to 1,582, as I showed in my report of 1890.

At the focus in New Brunswick the number of lepers in 1875 was thirty-six; in 1885 it was twenty-five; and a recent letter informs me that the number in 1894, is twenty-one in hospital and three at large.

It has disappeared from Tracadie, where it was most prevalent a few years ago, but new cases have appeared in surrounding districts. Isolation is now practiced more strictly than before, and the authorities expect to stamp out the malady more rapidly.

The let alone policy is illustrated by the recent rapid increase of leprosy in the United States of Columbia. In two of these states alone, the number of lepers is estimated at 30,000, and the Government is now considering the advisability of planting a leper colony on one of the islands off the coast.

We are informed that a hospital for lepers has been established at Rio de Janeiro, equipped with a laboratory for study of the disease.

At the present time Louisiana contains probably more lepers than all the other States of the Union together, except perhaps California or New York.

It is recently reported that there are thirty-five to forty lepers in the city of New Orleans, and about fifty more in three of the parishes (counties) situated in the southern part of the State. In 1889, forty-two cases were found in New Orleans, and fifteen to eighteen cases were traced in the country, with the probability that more were undiscovered. It is believed that the disease has existed for several generations among certain families of the lowest class of Creoles in Southern Louisiana. In 1892 the State Legislature passed an act of which the following is a copy:

An Act to prevent the spread of leprosy and to provide for the treatment of the same and for isolation of persons afflicted with said diseases and penalties for non-compliance with this Act.

SECTION 1.—*Be it enacted, etc.*, That whereas the disease known as leprosy which is contaminating and dangerous to public health and welfare, exists in this State and that persons afflicted with said disease are permitted to be at large thus endangering public health,

SEC. 2.—*Be it further enacted, etc.*, That all persons afflicted or suffering with said disease of leprosy shall be confined in an institution isolated and used for the treatment of said disease. And it shall be a misdemeanor for any one to harbor a leper or lepers and the penalty to be imposed upon any one harboring said leper or lepers and refusing to commit them to the care of said institution shall on conviction before any committing magistrate in this State, be subject to a fine of not less than $5 nor more than $25 or imprisonment for a term not exceeding thirty days. Said fine shall go to the support of said institution and said party so found to be a leper, shall be committed to said institution. That whenever it shall be made known to the judge of the district court by the petition and oath of any individual, that any person afflicted with leprosy within his district ought to be sent or confined in said institution, it shall be the duty of said judge to issue a warrant to bring before him, in chamber, said person so afflicted with leprosy, and after proper inquiry into all the facts and circumstances of the case, if in his opinion, he ought to be sent to or confined in said institution, he shall make out his warrant to the sheriff of the parish, commanding him to convey said leper to said institution: for which duty the sheriff shall be liable and have the right to demand the same fees as are now allowed by law for the conveyance of insane persons to the State Insane Asylum, which shall be paid out of the parish treasury upon the order of the district judge, and likewise all other expenses previously incurred in bringing said person before the district judge.

SEC. 3.—*Be it further enacted, etc.*, That the buildings and institution situated in the city of New Orleans in this State now used, or that may hereafter be used, selected, or directed to be used for the care of and treatment of leprosy, under a contract with the city of New Orleans, by virtue of an ordinance No. 5785, passed and adopted on March 31, 1891, shall be the institution to which lepers shall be sent and committed under the penalties provided for in Section 2, of this Act.

A number of lepers have been gathered into a hospital at New Orleans, where they are maintained on a contract with a certain physician at a charge of $25 per month.

At the date of my information (January, 1894,) this number was only ten, and this arrangement could not be regarded as a successful mode of dealing with the case.

In California, several unsuccessful efforts have been made to obtain an appropriation from our Legislature for a State leper hospital. The law requires lepers to be kept apart from the other population, and the burden of their maintenance falls on the counties. No one of the counties or cities has a special hospital which deserves such a name.

Most of the known lepers in the State are kept in a hovel which stands on the same grounds as the smallpox pesthouse in San Francisco, and the two classes of patients intermingle at will, whenever cases of smallpox are sent there.

This method (if method it be) of dealing with these two loathsome diseases in our metropolis, is in the highest degree discreditable to a great and wealthy city.

Whenever it is found practicable, the Chinese and Hawaiian lepers are shipped back to their native countries, as the easiest method of disposal of troublesome subjects. At present there are fourteen inmates of the leper quarter.

As to the control of leprosy, therapeutics still affords us no hope. Segregation has succeeded in the past, and will succeed again, though it involves individual hardship.

It seems probable that contagion is to be apprehended only from cases of the tubercular type at a stage when open sores exist, and that others need not be deprived of their liberty.

In my judgment, however, all lepers should be legally registered and kept under surveillance by the sanitary authorities, so that they may be isolated whenever necessity occurs. The law might provide for periodical inspection, and certificates of the same to those allowed to be at large.

RESTRICTION OF TUBERCULOSIS.

Read in the Section on State Medicine, at the Forty fifth Annual Meeting of the American Medical Association held at San Francisco, June 5-8, 1894.

BY J. H. DAVISSON, M.D.

MEMBER OF CALIFORNIA STATE BOARD OF HEALTH; MEMBER AMERICAN PUBLIC HEALTH ASSOCIATION, ETC.

Tuberculosis is the great enemy of the human race, —one-seventh of the entire human family die of tuberculosis.—(Koch). But little progress had been made in prophylaxis or treatment until the discovery by Koch of the pathogenic germ, the bacillus tuberculosis, which he announced to the world in 1882.

The bacillus tuberculosis is "parasitic, aerobic, non-motile, and only grows at 37 degrees C."—(Sternberg); though certain bacteriologists of the French school say it thrives even better at 39 degrees C. The thermal death point of the bacillus tuberculosis is about 70 degrees C.—moist heat—but it was formerly believed to be much higher, even 100 degrees C. The unstained spaces in the preparations of the bacilli under the microscope are generally believed to be spores, but the question of sporulation remains unsettled as the non-resistance of the bacillus to chemical agents, and having such a low thermal death point, would not indicate the existence of spores.

The bacillus being strictly a parasite does not grow or propagate outside of animal bodies, though certain animals, indeed a large number of the mammalia are immune. The human species, bovines and monkeys are more susceptible to the action of the bacillus tuberculosis than other animals. The period of viability or potential period of the bacillus tuberculosis, as it is found in dried sputum in residences, public buildings, and thoroughfares, where hidden from the sunlight, is about three months. De Tonia and others have found it potential after nine or ten months.

It is needless to say that it is now definitely settled that every case of tuberculosis in man or other animal, like every case of typhoid fever or Asiatic cholera, is due solely to its own pathogenic germ, and derived from a previous case. No one now believes in heterogenesis, as every circumstance connected with origin, development and progress of tuberculosis goes to prove the correctness of pathogenesis, as in typhoid fever, Asiatic cholera, and other infectious and contagious diseases. Dr. Flick's analysis of the mortality of the Fifth Ward in Philadelphia constitutes a most striking example of the infectiousness of tuberculosis.

Tuberculosis has always been regarded an hereditary disease, but since the discovery of the specific bacillus we have learned that tuberculosis is not inherited but is due to infection. That peculiar condition of the organism which lacks immunity to tuberculosis and renders one susceptible is inherited. While the greater number of individuals are born immune, many conditions of ill health and traumatism lower vitality, and render many others susceptible to tubercular infection by destroying native or innate immunity.

Human tuberculosis of every form then is directly due to inhalation, ingestion or inoculation of bacilli derived from mammals, either taken in with the air we breathe, or with food or drink, or by kissing, or by handling infected articles, as money, toilet articles, furniture, etc., or being otherwise inoculated wiih tubercular bacilli. Probably the larger proportion of cases of tuberculosis originate from the inhalation of the bacilli in desiccated and pulverized sputum which floats in the air as impalpable dust, in apartments and in the open air, producing pulmonary phthisis generally.

Next in order of frequency comes the immense number of cases of the numerous forms of tuberculosis from ingestion of infected food and drink—especially milk. Among this class are to be found most of the tubercular infants and children with tubercular meningitis, tuberculosis of glands, joints, bones, etc., the direct result of infected milk.

The third class, and probably the smallest number, in the light of existing knowledge on the subject, includes all cases otherwise infected or inoculated.

Many people look upon the restriction of tuberculosis by legal methods as tyranny and not consonant with our highest civilization; but this first thought or impression is soon dispelled by an understanding of the *rationâle* of infection and correct methods of sanitation and its results. The restriction of tuberculosis by offensive legislative enactments being placed upon the subjects of this chronic, infectious, and eventually fatal malady is erroneous. Certain reasonable legal restrictions should be placed upon tubercular patients, but principally upon others with whom they have to do. A strict quarantine should not be placed upon intelligent, rational and cleanly patients who willingly conform to the demands of sanitation which offers the surest means of preventing auto-infection, and security to the family and the country at large. It is a mistake to think that society is not ready for restriction. Society has long since been educated up to the point of absolute quarantine against all other infectious diseases, as smallpox, cholera, yellow fever, etc., diseases comparatively less fatal and by far less frequent—indeed society clamors for restriction of all such preventable diseases; but the legal restriction of a disease as surely preventable, so universal and so fatal, confronts the sanitarian with many difficulties, chiefly imaginary, that thorough education of the masses by official bulletins and other literature, by boards of health, can remove in a little time. Legal re-

strictions should be placed upon hotels, lodging houses, dwellings, public buildings and public thoroughfares, as railway coaches, sleepers, steamships, sailing vessels, omnibuses and other public conveyances. All such apartments and common carriers should be so furnished that under rigid sanitary rules they should be thoroughly disinfected immediately after occupancy by tubercular patients. Tuberculosis is not infectious until it is apparent—as during the third stage of pulmonary tuberculosis, or when breaking down and ulcerating and discharging, in affections of the glands or bones—and is not communicated by the breath of patients. Notification, registration and disinfection after death, removal, or recovery, should not be deemed hardships in the face of so much danger, even to members of the household.

If patients in the third stage of pulmonary tuberculosis will persist in traveling, it should be unlawful to infect highways, public buildings and thoroughfares, etc., by spitting broadcast, as is usually done, but such patients should be provided with suitable sanitary cuspidors, or they should be supplied with handkerchiefs of cheap and suitable material, to be used but once and then rolled up and burned at the first opportunity. The roving of such patients in the vain hope of regaining their health—often by the advice of a physician, but generally at the suggestion of some would-be friend who knows absolutely nothing of the case and generally less of the country or climate to which he presumes to direct the sufferer, is to be condemned as dangerous to the public health, and bad treatment for the patient. Many of these unfortunates, in the third stage of consumption, and beyond all hope of recovery, roam the country over, planting germs of disease and death in their tracks, and subjecting themselves to all manner of hardships and unscientific treatment at the hands of unscrupulous advertising charlatans, to die away from home and among strangers. Keep such patients at home for their own sakes and keep them at home for the sake of others.

The segregation of tubercular patients in hospitals, both private and public, is to be encouraged. While it is true that with perfect sanitation tubercular patients do not spread infection, even though they are intimately associated with others, yet segregation in hospitals, hotels, restaurants, lodging houses, asylums, prisons, dwellings, and in common carriers, is necessary until the masses are thoroughly schooled in the technique of sanitation.

"A person suffering from tuberculosis can be made entirely harmless to those about him by thorough sterilization of all broken down tissue immediately upon its being given off. With proper precautions it is therefore possible to live in the closest relation and upon the most intimate terms with consumptives without contracting the disease."—(Report of Committee American Public Health Association, 1893.)

I am in full accord with Dr. Baker, the efficient Secretary of the Michigan State Board of Health, in the idea that no State charity can accomplish more good results to mankind than a State hospital for the care, treatment and prevention of tuberculosis. By it the indigent consumptive can be infinitely better cared for and at less expense than now done, and all classes of society protected from this prolific source of infection. Private hospitals for the care and treatment of cases among the well-to-do, rather than sending them to the numerous health and pleasure resorts, would give much better results, as far as the patient is concerned, and restriction would be accomplished without objectionable features. Such institutions would have every facility for treatment and the perfect sanitation of such places would lessen auto-infection, so common among tubercular patients. These sanitaria should be located in climates and localities adapted to the purpose, and in the country in mountainous regions and at altitudes of about 2,000 feet, since the best results have been attained in climatic treatment by Loomis, America's greatest climatologist, at 1,800 to 2,000 feet in this country.

The question of altitude, in the treatment of tubercular consumption is in great part determined by locality or country and peculiarities of topography, meteorological conditions and climate. Tranquillity of the nervous centers, with consequent refreshing sleep, together with absence of cardiac disturbances and lessened tendency to hemorrhages, commend the relatively lower altitudes in California and many other climates in this country, Barring the disturbances of the nervous and circulatory systems, the higher altitudes of the Rocky Mountains, so ably set forth by Dr. Denison, of Denver, in many articles and reports, form notable exceptions to this rule. While in Europe many of the best climatologists regard altitudes below 4,000 feet as only preparatory to higher altitudes—as does Dr. Denison—and secure the best results at from 4,000 to 6,000 feet, or more.

In corroboration allow me to quote from Dr. S. Jaccoud's original article in the *Medical Week*, March 9, 1894, as follows: "Undoubtedly by reason of its location both toward the north and east, the climatic conditions of Görbersdorf, Brehmer's admirable creation in Silesia, in spite of its low elevation (1,827 feet), are closely analogous to the conditions prevailing in Switzerland at a height of 4,200 to 4,600 feet, and the tonic action is in every respect similar."

The dairy is now known to be one of the prolific sources of tubercular infection and Dr. Salmon, Chief of the Bureau of Animal Industry, states that about 3 per cent. of dairy cows near our large cities are tubercular. In a report to the Provincial Board of Health, Toronto, Dr. Brice, the Secretary, says that 4.5 per cent. of cattle slaughtered in Berlin were tubercular; 9.5 per cent. of those in Upper Silesia; and 12.22 per cent. of 12,000 cattle killed in England under the Pleuro-Pneumonia Act of October, 1890, as determined post-mortem.—(JOURNAL AMERICAN MEDICAL ASSOCIATION, May 12, 1894.)

That milk is often filled with tubercular bacilli, with no apparent disease of the udder, is the dictum of many authorities, hence we should have thorough inspection of cattle and dairy cows by competent veterinarians, and in addition to the usual methods of investigation the use of tuberculin as a diagnostic agent is now indispensable.

Dr. Legay stated to the Congress de la Tuberculose that he had added desiccated and powdered tubercular sputum to milk which he then boiled and then injected into rabbits and produced tuberculosis.—(*National Popular Review*). This teaches another lesson in the important process of sterilization of this most important food product.

The Committee on Restriction and Prevention of Tuberculosis, of the American Public Health Association at Chicago, in October, recommended the follow-

ing resolutions relating to restriction, which were adopted, viz:

"1. The notification and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.

"2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.

"3. The establishment of special hospitals for the prevention of tuberculosis.

"4. The organization of societies for the prevention of tuberculosis.

"5. Government inspection of dairies and slaughter houses, and the extermination of tuberculosis among dairy cattle.

"6. Appropriate legislation against spitting into places where the sputum is liable to infect others, and against the sale or donation of objects which have been in use by consumptives, unless they have been thoroughly disinfected.

"7. Compulsory disinfection of hotel rooms, sleeping-car berths and steamer cabins which have been occupied by consumptives, before other persons are allowed to occupy them."

A practical means of limitation of tuberculosis or prophylaxis is thorough drill of the patient, friends and attendants by the physician in charge, and ample rules of technique and literature relating to the disease should be furnished gratis to physicians and nurses by boards of health. The plan of the New York Board of Health, of making bacteriologic examinations gratis for medical attendants, in suspected cases, should not only be generally adopted, but should include other infectious diseases as well.

When we contemplate an annual death rate of 163,500 in the United States from the various forms of tuberculosis, without efficient restrictive measures, we should take courage at reading the following extract from an editorial in our official JOURNAL: "The indisputable fact that its death rate (meaning tuber culosis) has been reduced to one-fifth of its former proportions by rigid enforcement of simple and practicable measures of disinfection, of excretions and discharges of every tubercular patient, and of every material thing liable to be contaminated by such excretions and discharges, is a rift in the cloud through which may be discerned the time when tuberculosis like leprosy and the black death, shall, be of interest merely to the historian of human progress," —(Rohé).

In a recent presidential address before the Medical and Chirurgical Faculty of Maryland, Dr. Rohé says: "The isolation of patients is unnecessary; when the material containing the tubercle bacilli—in these cases the sputa—is destroyed, the consumptive is no longer dangerous to his most intimate associates." Such positive statements by these and many other most competent sanitarians should inspire the consumptive and his friends to the strictest sanitation as a means of self-defense.

Restriction of tuberculosis is not only justified from the standpoint of sociology but it is also justified from a business standpoint. When tuberculosis is viewed in the light of financial losses to the country and the nation, the logic of results of restriction demonstrates the correctness of restriction as a business proposition. It is rather difficult to understand why no material advancement in prophylaxis has been made, as the contagiousness of tuberculosis has had its believers for centuries. It is also a matter of wonder that after the thorough restrictive decrees of the King of Naples more than a century ago, which seemed to be based upon correct views of infection, and so effectual—though in some respects overdone—that the medical world did not take up the cue and that the dictum of the Neapolitan Kingdom did not mark an important era in the prevention of tuberculosis; to be rapidly followed with more general restriction.

As announced in a circular letter in November, Dr. J. R. Laine, Secretary of the California State Board of Health, at the second annual State Sanitary Convention, held at San Jose, April 16, 1894, (under the auspices of the State Board), offered the following resolution, which was adopted:

"*Resolved*, That hereafter consumption (and other diseases due to the bacillus tuberculosis) should be included in the list of diseases dangerous to public health, requiring notice by householders and physicians to the local health officer as soon as such disease is recognized."

Advanced grounds are now being taken in the prevention of tuberculosis in many countries in Europe, and in our own country by various State Boards of Health, and by many cities and towns.

In conclusion, permit me to say that the difficulties of restriction of tuberculosis are in fact chiefly imaginary and pessimistic and will soon give place to reason and thorough sanitation.

TUBERCULOSIS AND ITS PREVENTION.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY WINSLOW ANDERSON, A.M., M.D., M.R.C.P., LOND.

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Quarantine regulations are enacted and rigorously enforced in cases of cholera, smallpox and other contagious and infectious diseases, while the most dreadful scourge the human race has ever known—a disease which causes the death of more human lives than any and all other infectious and contagious diseases combined—is permitted to spread its frightful ravages without the slightest interference from medical, municipal, State or national authorities, and that disease is tuberculosis. Quarantine is declared against epidemics of a hundred or a thousand cases of cholera or yellow fever, and yet no laws reach consumption, although over 150,000 deaths occur annually in the United States from this disease alone. If this enormous death rate from any one disease does not constitute an epidemic, I should like to know what it might be termed.

To indicate how it is contracted—for it is never inherited—it is only necessary to quote such high authority as Prof. Wm. H. Walsh, of Johns Hopkins University, who states that the bacilli of tuberculosis, among other infectious diseases are found in the sputum. This sputum is dried, pulverized and inhaled. The breath itself is seldom contagious so long as it remains moist, but when it becomes dry it is competent to infect those who breathe it. Tuberculosis is also contracted by contact and absorption as well as by food and drink which has been contaminated by the bacilli.

EARLY HISTORY.

In 1810 Bayle demonstrated that persons having died of consumption exhibited peculiar grayish nodules in various organs of their bodies. Laennec considered these nodules specific of tuberculosis.

Virchow named these tubercular deposits "cheesy infiltration or caseation." Scrofulous enlargements such as glands, were later on considered tubercular. In 1865, Villemin discovered that these cheesy, tubercular deposits would, by inoculation, produce tuberculosis in healthy animals. Somewhat later, Klebs and Cohenheim declared that tuberculosis was a specific infectious disease, contrary to the generally accepted theory of Niemeyer, that consumption, in the main, was a chronic non-specific inflammation of the lungs. Afterwards, Koch in 1881 isolated the microörganism which is now proven and accepted by the scientific world as the specific pathogenic microörganism of tuberculosis.

All wasting diseases of the lungs are not necessarily tubercular. We have chronic bronchitis, bronchorrhea, chronic cirrhosis of the lungs, etc., with more or less expectoration, fever, sweating and emaciation, which are not due to the bacilli tuberculosis, but the vast majority of cases of consumption must be looked upon as tubercular; and if you will look for the bacillus you will nearly always find it.

The tubercle bacilli, as you all know, are small rod-like bodies having a length of about one-fourth to one-half the diameter of the red blood corpuscle, so that it requires from 7,000 to 15,000 of these rod-like vegetable bodies, if placed end to end, and from 50,000 to 75,000 of them, if placed side by side, to measure one inch. The interior of these rods may frequently be observed to contain very minute colorless spots—spots which do not take up the coloring matter usually employed in staining the bacilli. These are the spores, the most dangerous part, as they are exceedingly difficult to destroy. It is more than probable that the bacilli which we discover under the microscope in the sputum of a phthisical patient, are merely the dead shells or carcasses holding the living spores. The staining of these bacilli is exceedingly simple. Any physician having the slightest doubt of his diagnosis should at once resort to the microscope, as the disease can be arrested in its early stages.

The tubercle bacilli will be found in tubercular sputum, lungs, brain, intestines, spleen, liver, kidneys, glands, scrofulous or tuberculous bones, and in the so-called "lupus," which is in fact nothing but a tuberculous skin. The bacilli are frequently found in chickens, dogs, monkeys, guinea pigs and cattle. "Pearly distemper" of cows is now definitely known to be tuberculosis.

HOW DOES TUBERCULOSIS AFFECT MAN?

It is now agreed that tuberculosis can not, like syphilis, be born in the infant. It must be acquired. Therefore, if acquired, it can and should be prevented. Dr. Billings says that in consumption the specific germ is very rarely, if ever, transmitted; inheritance giving only a special susceptibility to its action. The effect of occupation and bodily condition also plays an important part. This is proven by Dr. Biggs, who shows that out of every 1,000 deaths among farmers only 103 die of tuberculosis, while out of the same number of deaths among printers, 460 die of the disease. According to a report recently sent into the Academie de Medicine, in Paris, giving the statistics of 662 towns in France it is shown that consumption increases in proportion to the size of the towns, viz:

INHABITANTS.	MORTALITY FROM PHTHISIS.
5,000- (less)	2.00 to 1,000
5,000- 10,000	2.16 " "
10,000- 20,000	2.71 " "
20,000- 30,000	2.88 " "
30,000-100,000	3.05 " "
100,000-430,000	3.63 " "
Paris	5.00 " "

Fourteen per cent. of all deaths is from tuberculosis. Tubercular diseases play sad havoc in every civilized country in the world. Statistics show that about *one-seventh* of all deaths from all causes, is due to this same tubercle bacillus. This fact should be firmly impressed upon the mind of every physician and sanitarian, also that an acquired disease must be a preventable one. One-quarter of all deaths occurring between the ages of 15 and 30 years, according to Dr. Biggs, is due to tuberculosis. This would seem to increase the percentage even more, for many children die in infancy and many people die in old age of causes other than tubercular. During the twenty-five years ending 1886, the average annual deaths in England from consumption reached the enormous number of 50,000. During any one year in the United States over 150,000 people die of this disease. And yet we are bound to admit that the disease is a preventable one. Over 30,000 deaths from tuberculosis occurred in New York city during the five years ending Jan. 1, 1893, while all the other contagious and infectious diseases combined, including smallpox, typhus, typhoid, scarlatina, diphtheria, measles and whooping cough, only caused the death of 21,000 during the same period.

The vast majority of cases of phthisis occur in the lungs—why? Because the germs are drawn in during inspiration. Inoculation experiments prove that the first expression of the disease takes place at the site of its inoculation. Extension may then be rapid or slow and become general or remain localized. If inoculation be practiced in the anterior chamber of the eye, the first tubercular nodule will appear on the iris. If it be in the abdominal cavity, there is first a tuberculosis of the abdominal glands and peritoneum. Should the bacilli enter a wound or a scratch on the hand, the first manifestation of tuberculosis will be seen in the nearest lymphatic gland. Consequently, if the germs are breathed into the lungs we have first a tuberculosis of the bronchial glands and lungs.

For several years, Tappeneiner and others, powdered tubercular sputum in the Pathological Institute in Munich and had different animals inhale it. In every case the animal experimented upon became tuberculous. Domestic animals also play an important part in the production of tuberculosis in man. Chickens will eat the sputum of phthisical patients and contract the disease. By eating under-cooked chickens, tuberculosis may be communicated to man, although the disease is claimed to be slightly different. Dogs in like manner become consumptive and may readily communicate the disease by licking the mouth. Fissures and excoriations of the skin may also become infected. The wearing of clothing, earrings, etc., previously worn by consumptives may spread the disease. Laundrywomen have been known to contract the disease from washing infected clothing. Consumptives occupying public positions, such as clerks in post-offices, banks and the like, are dangerous to public health. Clerks in grocery stores and dry goods establishments should not be con-

sumptive, as the dry sputum might easily infect the food and the wearing apparel which they handle. Meat and milk often spread the disease. Cattle frequently become consumptive as manifested in the "pearly distemper," which, it is estimated, affects at least 3 per cent. of all cows. Their meat, as has been proven by Strümpell, is capable of communicating tuberculosis by infecting the intestinal glands with the uncooked bacilli. Billings assures us that one-half to 1 per cent. of all meat sold for food is tuberculous. More frequently, however, the communication is produced by diseased milk. Palleske in *Virchow's Archiv.*, concludes from a series of experiments that microörganisms are found in 50 per cent. of human milk. Cow's milk frequently contains bacilli tuberculosis and nearly always when the udder presents pearly nodules. This will no doubt explain why so many children die of tubercular meningitis and consumption of the bowels, and yet we have no systematic scientific examination of milk in any part of California. For that matter we have no scientific inspection of any article of food that we consume. Is it any wonder that one-seventh of our deaths is from tuberculosis? One sometimes wonders how it is so many escape! It can readily be seen how easily persons having weakly strumous tendency or diathesis inherited from sickly or drunken parents may become tuberculous. They are certain to breathe in the germs, if not at home from some member of the family, then from the air in the street cars, railway carriages, churches, theaters, the streets and public highways which are sure to contain the bacilli, so long as that filthy habit of spitting is permitted. Our modern sweeping machines are excellent microbe disseminators. Those in San Francisco can be particularly recommended for that purpose.

There is every reason to believe that man becomes infected principally from the sputum of phthisical patients which dries upon the ground, on the floor, linen and other objects. It becomes powdered, and with the dust particles the bacilli float about in the air. Thus we see how easy it is for infection to take place. Sternberg says there can be no doubt that a large proportion of cases of tuberculosis in man results from the respiration, by susceptible individuals, of air containing the bacilli in suspension in a desiccated condition. He also asserts that the germs of tuberculosis may remain in the air for many months and retain their vitality until they find a favorable nidus for multiplication.

BACILLI IN AIR AND EARTH.

According to Billings, bacteria are persistently present in the lower stratum of the atmosphere we breathe, just as they are nearly always found in the upper stratum of the earth. These statements hold good with the exception of high altitudes, mid-ocean and polar regions. Tuberculosis is rare over 10,000 feet and never found over 16,000 feet elevation.

The bacilli most frequently found in the air and in the earth are those of tuberculosis, malignant edema, tetanus, summer diarrhea, anthrax, malaria, diphtheria and cholera. Dr. Osler has estimated that from one and one-half to four billions of bacilli are expectorated daily by every well marked case of phthisis. Carnet examined the dust on the floor, on the walls, in the curtains, etc., in houses previously occupied by phthisical patients, and found it teeming with bacilli. When these were injected into guinea-pigs, consumption was rapidly established. This is about what we should expect. How could it be otherwise? And yet we move into these houses and occupy the very rooms without knowing or caring who occupied them previously. In prisons the mortality from consumption often reaches as high as 50 per cent. of the total number of deaths. This is easily explained when we remember that the rooms are infected with the deadly germs.

The Imperial Board of Health of Germany have been conducting experiments with dust taken from the floors, walls and seats of passenger cars. They examined forty-five compartments of twenty-one cars and inoculated with the dust so obtained one hundred and seventeen animals. Some of these died within a few days of various contagious diseases, before there was sufficient time to develop phthisis; three of those remaining had tuberculosis when killed five or six weeks after the inoculation; 78,000 bacteria *per square inch* were found on the floor of a fourth class car, and from 16,500 to 34,400 for the same space on the first, second and third class.

INTERMARRIAGE.

Intermarriage of consumptives is one of the most baneful practices modern civilization countenances. Hundreds of deaths occur annually from this cause alone. Not only is the offspring weakly, puny and prone to contract tuberculosis from one or both parents soon after birth, but the husband or wife even if perfectly healthy, will contract the disease from the sick one. I recently saw this exemplified in my own practice.

In 1874 Dr. Herman Weber furnished some startling statistics regarding the transmission of consumption between husbands and wives. He records thirty-nine husbands more or less tainted with the disease who had married healthy wives, nine of whom died with consumption. These nine husbands lost eighteen wives among them, viz: three lost one each; four lost two each; one lost three and one lost four; all of these women were healthy previous to their marriage and died within two years thereafter of consumption.

Ten years later the British Medical Association, wishing definite information on the subject, communicated with medical men in various parts of the world, and received returns to the effect that in the majority of cases the husbands imparted the contagion to their wives, but occasionally the rule was reversed. Servants and nurses contracted the disease from their mistresses and from each other. One case was cited of a consumptive dressmaker who had three apprentice girls from different villages and without any consumptive diatheses, who took turns in sleeping with her. In less than two years these three girls died of consumption.

Compare the foregoing conditions with the care we take in breeding horses and dogs. We go to any expense and trouble to breed healthy full-blooded horses. Stables of palatial pretensions are erected for them in the most salubrious climates. A veterinary surgeon visits them frequently, inspects their food and directs their exercise and the hygienic conditions under which they live. Dogs are similarly cared for and tended and yet, sad to relate, no such care, attention nor prophylaxis is attempted in regard to the human race. It is indeed a sad commentary on the value we place on one of God's noblest creations

when we have to chronicle the fact that more care and more thousands of dollars are expended on a horse or a dog than on the life of a human being. The horse and the dog are carefully mated and cared for during gestation, while man, in any condition, is permitted to marry whom he pleases although loved ones are carried to the grave by the hundreds, and the soil for scrofula and tuberculosis is prepared for generations yet unborn by such unwise, unjust and unjustifiable marriages.

IMPURE FOOD.

Fully as dangerous as the foregoing is the matter of impure food. Last year I had the honor of pointing out, in a paper read before the Sanitary Convention of the State of California, that much of our food supply was unfit for use, as it had not been properly examined. A still greater evil exists in our milk supply of this and many other cities. I have examined many samples of milk, and I am bound to confess that very few of them came anywhere near the standard prescribed in England or Germany, or the standard for pure milk in our own country. But the most dangerous consideration is that of tuberculous milk. Of this I found more than one sample. Several other investigators have corroborated my researches. It is now conceded and capable of demonstration that from three to five cows in every one, are suffering with tuberculosis.

Dr. P. H. Bryce in his report presented to the Provincial Board of Health Feb. 15, 1894, says that from 2 to 3 per cent. of the cattle in the State of New York are afflicted with tuberculosis. This means that there are over 1,200,000 head of cattle in the United States which should be killed. Dr. Bryce further states the relative prevalence of tuberculosis in cattle in different countries to be 4.5 per cent. in Berlin, 9.5 per cent. in Upper Siberia, and 12.22 per cent. of those slaughtered in England under the Pleuro-Pneumonia Act of 1890.

The State Board of Health of California under its distinguished President, Dr. C. A. Ruggles, found more than 50 per cent. of the cows used at the Stockton Insane Asylum infected with tuberculosis in 1894.

Their milk contains the bacilli of the most dreadful foe the human race has to contend against, and yet we have no scientific milk inspection. Butter may also contain the germs as we all know meat does. Who can tell how many cases of tabes abdominalis are due to the bacilli-laden milk the infant drinks? Consumption of the bowels is not an infrequent disease in San Francisco, and it has been fully demonstated that tuberculous milk produces the fatal disease. Not only is this the case with infants but also with grown people. Dr. Olliver reports an instance requiring more than a passing notice. It was in a boarding school for young ladies. In the course of some little time several of the scholars were taken ill with tuberculosis and removed to their homes. Sanitarians inspected the premises. The plumbing was good, the air salubrious and the buildings were properly ventilated. The food and water were found to be wholesome and no cause could be assigned for the disease. Still one after another came down with abdominal or pulmonary tuberculosis until the number had reached twelve. Everything had been examined excepting the milk. This was the last article of food thought of, as it was produced from a large dairy not far away. However, upon investigation the milk was found to contain tuberculous germs, and as milk was cheap and presumably healthy, the young ladies of the school had been fed upon it *ad libitum*. The cows were next inspected and many of them were found to have "pearly distemper" or consumption. The owner of the herd was forced to withdraw his milk from the market, and not knowing what to do with it he fed it to his pigs. The records show that even the pigs could not withstand the bacilli tuberculosis, as all died from the disease within a year. Suffice it to say that as soon as healthy or boiled milk was supplied to the young ladies' school there was no more consumption. It is asserted, and rightly so, that if bacilli are introduced into the stomach of a healthy individual, they are usually digested or rendered inert by the gastric juice, but how many infants who drink milk are *not healthy?* How many have the necessary resisting power? We all know that there are thousands upon thousands of susceptible cases in every large city, and these are the first to succumb. It is all wrong, it is unscientific, nay more, it is absolutely criminal to allow such matters to go unchecked. We owe it to ourselves, our friends, and to the community at large to enter our solemn protest against the consumption of articles of food, and especially of milk, until they have been carefully examined by competent authorities. Every Board of Health should have the power to appoint competent chemists and bacteriologists to investigate this matter, and thus lessen the mortality from tuberculosis.

ISOLATION OF TUBERCULOUS PATIENTS.

A hundred years ago a law was enacted in Naples which compelled physicians to report all cases of consumption to the Health Department under penalty of a fine of three hundred ducats; a second offense being punishable by ten years' imprisonment. In this way Naples has reduced her mortality of consumption 90 per cent. Improved hygienic conditions and isolation of tuberculous patients in England, has reduced the mortality 50 per cent. within the last few years. Philadelphia, during the eight years just passed, has reduced her mortality from phthisis 20 per cent.

The disposal of consumptives both living and dead is another subject of considerable importance. There can not be the slightest doubt that consumption is communicable from one person to another in the various ways indicated. It can not, therefore, be denied that every consumptive becomes a danger to those around him—a danger to public health. What shall be done with him? Shall we, as intelligent physicians, fully aware of the danger, prostrate ourselves before Allah as do the good Mohammedans in times of cholera epidemic and say: "Let thy will be done; there is no God but Allah?" or shall we stand calmly by with our hands folded and our face to the sun, as do the people of India, imploring protection from Brahma and Vishnu the creator and preserver, that Shiva—the destroyer—does not annihilate us? Rather, shall we not as men, imbued with Western thought and civilization and freed from the trammels of oriental and occidental superstitions, assert our rights as teachers of the healing art, determine what had best be done with the unfortunates who become consumptive? I say, yes, we must protect the public health. In that event we are bound to isolate and care for consumptives so that the disease does not

spread. California is rapidly becoming a great sanitarium for these unfortunates. If we allow them to come to our shores to seek health, is it not proper that we should protect the healthy? Should we not protect our fair sunny shore with its balmy atmosphere from becoming a cesspool of contagion and infection? How can this be accomplished? Not by denying consumptives to come to our fair land to be cured. No; but by proper isolation; by proper regulated sanitaria, giving them all the advantages of climate and hygienic surroundings, rationally constructed buildings and scientific medication.

CREMATION OF CONSUMPTIVES.

What shall be done with the bodies of those who die of tuberculosis? It is estimated that 32,000 persons die annually to every million that are living. This means that 48,000,000 people die annually, of which one-seventh, or about 7,000,000, die of tuberculosis. These figures are almost incomprehensible. Estimating seventy-five pounds to each consumptive's body there are about 300,000 tons of bodies for burial annually. Fortunately they are not all buried; many of them are, as they should be, cremated. The bacilli of tuberculosis have been found in old cemeteries in which no inhumation had been practiced for over twenty-five years. Pasteur and others have proven that the earthworms bring the bacilli to the surface of the soil where they can be found in all cemeteries. It takes from five to twenty years for human bodies to decay, and as millions upon millions of consumptive bodies are continually being added to those already buried, the result must be self-evident, and instead of one seventh of our population dying—as they do now—of tuberculosis, it must of necessity increase. Something must be done, and that before it is too late.

The Mosaic laws direct that all lepers be driven out of their houses and their effects burned. What leprosy was to Moses and his people, and is to-day to the Hawaiians, tuberculosis is to the American people—the greatest scourge the human race has ever encountered.

RULES FOR THE PREVENTION OF TUBERCULOSIS.

Comprehensive and efficient means should be adopted for the prevention of tuberculosis. I will recommend the following:

1. Educate the public to a proper understanding of the communicable character of tuberculosis. Teach the people how they can avoid contracting the disease themselves and how they can prevent transmitting it to others.

2. The promiscuous expectoration of consumptives should be prohibited. The sputum should be received into a 10 per cent. solution of carbolic acid, or an acid solution of bichlorid of mercury, 1 to 1000. If at any time this be impracticable, the sputum may be collected on paper napkins or handkerchiefs which must be burned before they become dry. Under no circumstances should a phthisical patient be allowed to spit on the floor or on the streets.

3. Let every physician employ systematic bacteriologic examination for the early diagnosis of the disease, and let us inaugurate compulsory registration of all cases of tuberculosis.

4. It should be made compulsory to have careful and thorough disinfection of all houses, apartments, penal and reformatory institutions, carriages, street and railway cars, steamships, theaters, churches, etc., which have been exposed to infection from phthisical patients.

For disinfection of rooms I would recommend sulphur acid gas obtained by burning one ounce of sulphur to every ten cubic feet of space, or chlorin gas to saturation. Shut all doors, windows and crevices for four hours, then let in the fresh air and scrub the walls, floor and articles of furniture with the acid bichlorid solution (bichlorid of mercury 3ij, tartaric acid 3ii to the gallon of water, or 3ij each of $HgCl_2$ and permanganate of potassium to the gallon). Remove all wall paper if it can not be washed or painted. Thoroughly boil or steam all bedding, carpets, curtains, etc., for at least one hour.

5. Under no circumstances should the stools of tuberculous patients be emptied into the sewers until they have been thoroughly disinfected. The intestinal glands are frequently implicated in tuberculosis, and the dejecta often teem with bacilli; therefore all discharges should be received into a solution of eight ounces of carbolic acid to the gallon, or four ounces of chlorid of lime to the gallon of water.

6. Enact regulations prohibiting tuberculous individuals from following vocations that may expose others to the danger of infection. The sputum may dry on their beards or clothing and then be disseminated. For the same reason, consumptives should avoid kissing and even hand shaking to protect those near and dear to them. All dishes and drinking cups should be used by the patient exclusively and should never be mingled with those in use by other members of the family. The promiscuous use of public drinking cups in schools, cars, streets and churches, can not be too severely condemned, as contagion is possible from this practice.

7. Tuberculous mothers should not nurse their children. In fact, consumptive people should not be permitted to marry.

8. There should be established careful scientific examinations under city and State control, of all milk, meat and other articles of food sold. All animals suffering from tuberculosis, anthrax, septicemia, glanders, cattle plague, sheep-pox, swine plague, foot and mouth disease, acute pneumonia, actinomycosis, dropsy and rabies, should be killed and at once *cremated*.

9. Consumptives should always be isolated, and there should be established under State control public hospitals and sanitaria for the segregation and isolation of the consumptive poor, where they could live under the best hygienic laws, receive proper food and judicious medicament.

10. All persons having died of tuberculosis should be at once wrapped in sheets wrung out of bichlorid solution, and cremated as soon as practicable. If this be not possible, then they should be buried with quick-lime, as the bacilli do not die with their host, but have been found in cemeteries from two to twenty-five years after inhumation.

Is it not our duty to prevent the ravages of tuberculosis and thereby save over 150,000 lives annually in the United States? Are we not bound by our obligations to ameliorate suffering and prevent loss of life, and this can be accomplished by isolation, proper hygiene and disinfection. That tuberculosis is contagious—even from man to wife, no one but the ancient, non-progressive physician will deny—preven-

tion is not only possible, but comparatively easy, and it is *demanded* of us as physicians and sanitarians guarding the public health.

CLEANLINESS THE CHIEF ANTISEPTIC.

Read in the Section on State Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

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In these days of bacteriologic investigations much time and study is necessarily devoted to the prevention of disease by destroying the bacilli that have entered the human body or preventing their entrance. The latter of these methods is to be preferred where it can be done, and it is the province of this paper to show that this may be accomplished much more thoroughly and satisfactorily by perfect cleanliness than by the use of so-called antiseptics. First, a few words regarding the physician and surgeon in whose practice cleanliness is an absolute necessity. This branch of my subject, although not precisely to be classed with State Medicine has nevertheless a bearing on it, and will form a suitable introduction to the main theme. Let us first speak of the surgeon and his work, in which the necessity of cleanliness is most apparent. If the surgeon will see that his hands, his person and his clothing are clean, that his instruments have always been thoroughly cleansed immediately after using them and are then cleansed again just before using, much difficulty will be avoided. Drenching the body and its exposed cavities with antiseptic fluids is not always the best thing to do, as injury is sometimes done by the absorption of the poisonous articles used as antiseptics. When a laparotomy is performed in which the interior of the abdomen is exposed to the outer air; when the interior organs are handled by the surgeon or his assistants: when instruments and sponges are introduced into the cavity and come in contact with healthy organs, the necessity of perfect cleanliness becomes apparent even to an inexperienced observer. I have seen surgeons who prided themselves on their extreme care in preserving antisepsis, make lamentable blunders by allowing sponges that had been in contact with diseased parts, removed from the abdominal cavity, to be used again in cleansing the cavity after the operation, preparatory to closing it up. Many little errors of that kind, escaping observation at the time, contribute to unfortunate results which are then ascribed to something else. A few words about the physician before referring to the main topic. Here cleanliness is just as important as in the case of the surgeon, although not always so carefully observed. See the number of cases of puerperal peritonitis caused by the carelessness of the accoucheur in handling the puerperal woman with unclean hands or with imperfectly cleansed instruments. I knew a case of a physician who was skilful, amiable and generally beloved, compelled to abandon the practice of medicine because, during one season, almost every case of obstetrics he attended was followed by puerperal fever, fifteen of which died within the space of a few months. Now there is no doubt in my mind that he carried the disease from one patient to another by a want of proper attention to cleanliness. He either failed to clean his instruments thoroughly when he used them, or carried some of the contagion on his hands. There are many places on the hands that escape the scrutiny of the owner, even when he employs frequent lavations; as under and around the nails, between the fingers, etc. The thermometer may carry disease when used in the mouth, if it is not carefully cleansed before and after using. In treating contagious and infectious diseases absolutely perfect cleanliness will do much toward preventing infection of the patients who are seen afterwards; the hands, the clothing, the hair and beard of the doctor may do much mischief if not kept perfectly clean.

We will now approach our main subject, the prevention of disease by cleanliness, so far as this can be controlled by the public authorities. Disease is undoubtedly propagated by germs, bacteria, micrococci, bacilli, or whatever they may be called. These germs may be conveyed into the body by the air passages or by the alimentary canal. In regard to the former, many would say that legislation can do nothing to purify the air. This, however, is not true. Consider the sewer gas, the exhalations from manure piles, the foul smells from shallow or full privy vaults, the odors from reeking back yards and alleys, and you will find them filling the air with all kinds of disease germs. When there is any talk of a prospective invasion of cholera, how all the papers teem with cries for a general cleaning up! How the health officers and inspectors begin to bestir themselves, ordering the people to clean up their premises, throwing copperas and other alleged antiseptics into holes from which issue foul smells, not knowing, perhaps that about all the effect these so-called antiseptics have on the bad air is to substitute another smell, so that the original one is not perceived. If the health officers and the health boards under whose authority they serve, instead of getting spasmodic fits of cleaning up, would exercise eternal vigilance to prevent the accumulation of filth, would have the plumbing of houses, the sewer system leading from the dwellings to the streets regularly inspected; if they would devote time and labor to the proper construction and maintenance of the sewer system in the streets of their cities; if they would appoint men to attend to this business who have made this work a special study, instead of making their appointment a means of bestowing political patronage upon their favorites, there would be infinitely better results.

In a paper I read before the Wheeling Medical Society, I spoke of the air as one of the media through which the bacillus of typhoid fever is conveyed into the system. This was controverted by several members who have had a bacteriologic training, on the ground that the bacillus of this disease can only be propagated in the alimentary canal. Admitting this hypothesis I still maintain my position. We will suppose that the excreta from a fever patient have been deposited upon the surface of the ground, or have found their way there from an imperfect receptacle, what becomes of it? It mingles with the soil and much of it is converted into dust. This dust pervades the atmosphere and is inhaled by people who move about in the air thus polluted. "But," says the objector, "the lungs do not form a suitable nidus for the bacillus of typhoid fever." Granted. But what becomes of the dust that clings to the cavity of the mouth, the palate, the pharynx, the upper part of the esophagus? By the next drink of water or any other fluid that is swallowed, the whole of it

is washed into the stomach where it does precisely the same work as that performed by the polluted drinking water. From this we see that impure air may even be instrumental in propagating diseases that do not develop in the air passages.

Much can be done by legislation and continual vigilance to purify the air of disease germs, in the way of proper attention to sewerage, the prompt destruction by cremation or otherwise, of the filth that is so often left rotting on the surface of the ground. The methods of doing this I do not propose to discuss here, that being a subject too extensive for a single paper.

Having spoken of the air which enters the mouth and nostrils, we will take up the substances that are taken into the stomach for nutrition, *i. e.*, food and drink. I will endeavor to show that much can be done here by being clean and by using our utmost endeavors to prevent anything that is unclean from entering the great work-shop of the body, the alimentary canal. When I speak of clean food I do not mean only the absence of that which is generally known as dirt or filth; for the average housewife will see that such impurities are not permitted to defile the food she prepares for the use of her family. I mean by impurity everything that is not a natural constituent of the article of food that is to be prepared for the table. All sorts of adulterations may be characterized as impurities. Some of these are of the grossest kind. For instance, the various ground spices that are sold by the grocer for family consumption. Who can tell what filth and what bacteria-laden substances are added to pepper and other spices to make them more profitable to the dealer, but deleterious to the consumer? The adulterations of butter, lard and other fatty substances are sometimes of a character that is injurious to health and dangerous to life. Meat can not be adulterated but it may come from diseased cattle, sheep or hogs. I know a man whose cow died of some unknown disease when she was near calving. The owner being a butcher, dressed the meat for market and sold it. He also prepared the unborn calf in the same way and sold it for first class veal. You might suppose that vegetables at least must be pure. Even here much filth may be found. Take radishes, lettuce, etc., which are raised in hot-beds for early use and in highly manured ground for later consumption. What is used as a fertilizer to hasten and render more luxuriant the growth of these vegetables? It is the manure taken from stables where may be diseased horses or cattle; or from privy vaults of the city where may have been deposited the dejecta of patients suffering from typhoid fever or other infectious diseases. This manure is not prepared by a chemical process which would destroy the life and activity of the germs that might be contained in it; but it is put on fresh just as it comes from the reeking receptacle. These vegetables are eaten raw and even if the sap going into them is purged of all germs, yet the outside of them is in close contact with the soil enriched by the manure which teems with all sorts of bacteria and may be, in some instances, a deadly poison. All these sources of impurity can and should be prevented; and it is the duty of every conscientious sanitarian to do all in his power to render the food we eat as clean as human care and watchfulness can make it.

What we drink forms a much more abundant and deleterious source of disease than anything else. The effects of spirituous, vinous and malt beverages do not come under my consideration unless they are adulterated with poisonous substances. I will leave the discussion of these articles to the tender mercies of the temperance lecturer, prohibitionist, etc. Although water forms by far the largest constituent of the human body, and must be constantly consumed in order to keep us alive, it is nevertheless the most prolific source of disease. It is not necessary to explain here how the germs of disease find their way into the water; for that is known to every intelligent and well read physician, and most certainly to every one who pays any attention to sanitation. To keep the water used for drinking clean, *i. e.*, free from bacteria, is one of the great problems of the hour.

In most of the cities of our land the water is pumped from running streams into reservoirs and thence sent through a system of pipes into the dwellings of the inhabitants. Now let us look into the character and qualities of this water and see whether it is clean and fit for use as a beverage. In order to make a test case by which all other localities may be judged, I will select my home, Wheeling, W. Va., situated on the Ohio River, ninety miles below Pittsburg, Pa. What an amount of filth is poured into this stream by the two great rivers, the Allegheny and Monongahela, one of which, at least, passes through a densely populated region, I shall not endeavor to portray. But let us look at the stream from which our water supply is taken and let those who hear or read this paper judge if it is clean. Between Pittsburg and Wheeling are about twenty-eight towns and cities situated on both banks of the river. Besides there are numerous small tributaries that have towns and villages on their banks. Now what becomes of all the filth and excreta that are deposited by the inhabitants, both human and animal, in these places? You all know that the greater part of them finds its way into the stream running by. Much is being done and has been done to obviate the difficulty and to remove this source of disease. But this is scarcely a drop in the bucket. Crematories are established here and there for the destruction of garbage and the contents of privy vaults. But what proportion of the disease-breeding filth is thus destroyed? Very little. Some years ago, the Legislature of West Virgina passed a law prohibiting the throwing of filth of any kind into a running stream. But who is there in the rural districts to see that the law is executed? Even if it is obeyed, where do they put their objectionable substances? If it is manure, animal or human, they spread it on the ground and the first rain that falls washes it down into the nearest stream. These streams carry the pollution into the great river, and the unfortunate people dwelling on its banks pour this polluted, disease-producing fluid into their stomachs, where it is likely to breed pestilence and cause destruction of life. The country districts, where the water supply is not obtained from the river, are not exempt from this scourge. It is often cited by those who do not believe in the theory of infection, now almost universally accepted by the profession, that epidemics of typhoid fever exist in villages far away from the great source of contamination, the river. Now let us investigate a typical farm-yard, or a home in a village in which horses and cows are kept. This

farm-yard, in a hilly country, is generally located on a gentle slope; the dwelling near the front with perhaps a moderate sized lawn. In the farm-yard is the well, an old-fashioned affair with a windlass, by means of which the "old oaken bucket, the moss covered bucket" is lowered and raised, bringing up the clear and limpid fluid of which the farmer is so proud, boasting that he has the finest water on the whole country side. In the rear, and consequently at a greater elevation are the stables, the cow sheds and the inevitable privy. This latter is generally shallow, liable to overflow when a heavy rain falls. This overflow runs down the slope, and much of it finds its way into the unguarded and carelessly constructed well. Now, let us suppose some visitor has come from the city; or one of the members of the family has visited a friend in the city where the river water is used, and returned. A case of typhoid fever occurs; the contents of the night vessel are emptied into the "backhouse" as they call it. The overflow comes and the well is polluted, the water being charged with bacilli. The inevitable consequence is that other members of the family become infected by drinking the water. Should neighboring families use out of the same well, as is often the case, they take in the contagion, and an epidemic on a small scale is the result. Now what is to be done here? We can not put antiseptics into the water to kill the bacilli for two good reasons: 1, it would render the water unfit for drinking; 2, it would not destroy the poison.

Antiseptics have by no means the powers that have been attributed to them. It was suggested some years ago to administer antiseptics, such as iodin and carbolic acid to fever patients for the purpose of destroying or neutralizing the ptomaines which cause the disease. I paid some attention to that practice, observing that all the young physicians employed it. I also tried it in some cases myself, although I had but little faith in its efficacy. I discovered that the death rate was not diminished by that method of treatment. Much preferable would be the treatment first proposed by Debove; subsequently experimented on by Lichteim and lately adopted with great success by Maillart, of Geneva, called the drinking treatment; in which large quantities of water are administered to the patient for the purpose of diluting and washing out the toxic substances in the alimentary canal and the blood. So we see that neither in nor out of the body is much gained by piling in antiseptic substances. The best thing to do is to see that everything that enters the body is clean, *i. e.*, free from deleterious ingredients, whether disease germs or irritating substances. It is utterly impossible to do this with absolute perfection; but we can at least approximate to a perfect standard of cleanliness.

I might go on ramifying this topic and speak of the necessity of giving none but pure uncontaminated water to the cattle, as much has been said lately concerning the communication of typhoid and other fevers through the milk, many cases of which have been proved beyond a doubt. It has long been known that certain diseases are communicated to persons using the milk from cows that are not themselves affected by these diseases; and this is sometimes plainly traced to the water that the cows drink. But my paper is already assuming an unwarrantable length and I will not discuss that here. If the physician is always clean in his person and clothing; if he takes care that his thermometer, or any other instrument he may have occasion to use, is thoroughly cleansed before and after using; if he insists on cleanliness in the sick room and of the patient as well as of the attendants, much trouble will be avoided and the death rate greatly diminished. If the authorities will use their utmost endeavors to purify the atmosphere, not by distributing antiseptic vapors, but by seeing that the least possible filth goes into it; if they will adopt the necessary precautions to prevent the sale of impure food; and if they will not only make laws but exercise eternal vigilance in their execution, to render the water supplied to the inhabitants, clean, in the proper sense of the word; not only clear and transparent, but free from the germs of disease; the general health will be vastly improved, the death rate will be reduced to the minimum, and preventable diseases will be almost stamped out. It will be found that antiseptics will not play so important a part as they are doing now; neither will the physician's duty be as sad and somber as it is at the present time. He will constitute an advisory committee to show his clients how to avoid disease, and will be a gentle help in alleviating the sufferings of those who are afflicted with unavoidable and incurable diseases. Let us hope it may not be too long before we reach "this consummation devoutly to be wished."

COMMON CARRIERS AS DISSEMINATORS OF CONTAGION.

Read in the Section on State Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY S. S. HERRICK, M.D.
SAN FRANCISCO, CAL.

It is not necessary here to consider the part played by sea-going craft, for this, as a factor in spreading disease, is practically eliminated. The ancient method of detention for a definite period has been superseded by inspection and exclusion of infected persons and things at the port of departure and repeated inspection, with disinfection if needed, at the port of arrival. Neither is it necessary to speak of the modern methods of inland quarantine, in which inspection with cleansing and disinfection have obviated all serious interruption of traffic. In both the measures used are reasonably efficient for the protection of the public, and at the same time generally satisfactory to carriers.

There is, however, a source of danger which so far, has attracted little attention, and no measures have been put in operation to counteract it. This is the disposal of the excretions of travelers on inland waters and on railway cars, in such manner as to prevent the contagion which they carry from reaching other persons. There are certain communicable diseases, whose contagious property is discharged from the alimentary canal, and is liable to reach the alimentary or respiratory tract of other persons, if not intercepted or destroyed. Cholera, typhoid fever, dysentery and intestinal tuberculosis are notable examples, and they are common enough among travelers by rail and by steam-vessels on inland waters to become a source of serious danger.

In some of the States there are statutes which forbid the pollution of streams by animal impurities,

having reference chiefly to the contents of sewers and to carcasses and offal of domestic animals. I am aware of no legislation thus far, which seems to take into account the pollution of rivers by travelers, nor the dangerous and indecent practice of allowing fecal matter to drop from railway coaches.

Art. 370 of the Penal Code of California reads:

"Anything which is injurious to health, or is indecent or offensive to the senses, so as to interfere with the comfortable enjoyment of life or property by an entire community or neighborhood, or by any considerable number of persons . . . . is a public nuisance."

Art. 372 reads:

"Every person who maintains or commits any public nuisance, the punishment for which is not otherwise prescribed, or who willfully omits to perform any legal duty relating to the removal of a public nuisance, is guilty of a misdemeanor."

There is no reason to suppose that the authors of the above enactments had in view the prohibition of the special nuisances herein considered, and it is rather doubtful whether courts would now construe them as applicable to the same, for want of precedent; but it would be practicable to amend these articles so as to make them apply to this offense, or to frame new statutes which would cover the ground.

Obviously, travelers themselves should not be held responsible for committing a nuisance, so long as transportation companies provide no facilities for obviating the same; and legislation should be aimed directly at these companies, holding them responsible and requiring them to provide an adequate remedy.

It is well understood that the law must not ordain what is impracticable, and equally plain that no serious difficulty and expense would be involved in abating such nuisances. No mechanical difficulty exists for a steamboat or railway coach to have its closet provided with a closed receptacle, having suitable means for deodorizing, disinfecting and ventilating, and for discharging the contents into some proper place at short intervals. The details of a contrivance suited to such a purpose need not here be entered into; they belong to the inventor and mechanic rather than to the sanitarian as such.

Aside from considerations of health, it seems strange that respect for common decency has not abolished a practice in travel by land which would have brought a blush to common carriers in the good old days of slow coaches. While inventors and builders of palace cars are doing so much for the comfort and convenience of passengers in other respects, they adhere to a form of closet from which travelers must be excluded at the time when it would be most acceptable (halting at large stations) and which scatters filth and disease along the route. It is to be noted that cholera still lingers in Europe, and meanwhile we must not consider ourselves safe here within two weeks' travel by steam; while the other filth diseases, like the poor, are always with us.

In my judgment the time has come for sanitarians to speak plainly and forcibly on the subject, and to demand of legislators a specific remedy which courts will be bound to apply to this class of offenses against health.

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VACCINATION AND RE-VACCINATION.

Read in the Section on State Medicine at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY EZRA M. HUNT, M.D., LL.D.
SECRETARY OF STATE BOARD OF HEALTH OF NEW JERSEY.

Vaccination for the prevention of smallpox was the first indication that an animal disease could supervene a human disease; that one disease could modify or prevent another, and that a great plague could possibly be abolished from the earth.

It is not our plan just now to outline, even in brief, the marvelous historical record, or the clinical facts as to it for the last hundred years, but only to specify and briefly note changes of view that have modified what we may call the Jenner impression as to it.

1. We have probably come to know that more than one animal disease has the power by inoculation of modifying smallpox. Jenner thought that it was the disease known as "grease" in horses, modified by passage through the cow, and again in man so as to prevent smallpox. Now it is probable that there are two or three forms of disease that may supplant variola in man, such as horsepox, sheeppox and cowpox of which some claim that there is more than one effective variety. Dr. Flemming (see paper referred to, *Lancet*, Aug. 2, 1890,) favors the conclusion that these three variolous diseases in the horse, cow and man are distinct, yet the inoculation of the virus of either of these affections protects from smallpox in man.

2. It is more than probable that kinepox is the smallpox of man which passing through animals is attenuated so as to give a virus which supplants the "caught" smallpox of man and so prevents it. This, in the view of Badcock and Ceely, is the real source of all the varieties of vaccine lymph in use for the prevention of smallpox. It is still, however, disputed by Flemming and various other authorities, the latter calling it a dangerous and fallacious doctrine. It has too many facts as to it, to be so regarded.

Besides various foreign papers, some confirmatory facts in the United States are presented in a paper in the *Philadelphia Medical News*, March 31, 1883, entitled "Notes on Variola and Vaccina." We think this view has been strengthened the last few years. Dr. McVail in his recent classical essay says: "The whole tendency of the evidence is to show this." (See Treatise on Hygiene and Public Health, Stevenson and Murphy, Vol. ii).

3. Though the identity of the disease is unchanged it has not a uniform type of severity. So far as we can trace in the period before inoculation, and far more before vaccination, the type was uniformly severe and the death rate uniformly high. This is not, as many affirm, so much the case now, independent of vaccination. Leicester and the anti-vaccinationists of England have been in the habit of giving many facts bearing on this point and some are added by Dr. B. A. Whitelegge in his Milroy lectures, London, 1893, "On Changes in Type in Epidemic Diseases," (See Lecture 2 especially. February, 1893). We quote as follows: "Vaccination has profoundly affected the epidemic course of smallpox, but changes of type are evident. In the latter part of the last century smallpox contributed on an average about one-tenth of the whole death rate of London, and in

1796 no less than 18.3 per cent. After this and coincidently with the introduction of vaccination, its ravages lessened until 1830. From 1830 to 1838 the records are missing, but in 1838 the mortality was again comparatively high, though below even the average which prevailed half a century before. After 1838 we can measure its course by actual death rates, and a considerable degree of order and even rhythm becomes apparent. Every few years—usually four or five, but sometimes two or three only—it recurred as an epidemic, but with somewhat reduced destructiveness each time until 1855, which happened to be halfway between 1838 and 1871. After 1855 minor epidemics continued to recur at about the same interval, but the loss of life on each occasion increased rather than otherwise. Then came the great epidemic or pandemic of 1871, killing a larger proportion of the population than in 1838. The course of events for twenty years after 1871 was not unlike that which followed the 1838 epidemic—successive outbreaks at intervals of four or five years, decreasing in mortality and subsiding after 1885 to a much lowel level than was ever before reached."

4. Protection depends upon the quality and quantity of lymph and is often not permanent, so as to need repetition. It is now fully conceded that there is significance in the character and number of the marks, such as quite justifies a plan of vaccination in use on the continent which repeats the process from week to week until no effect is produced. The English habit is to have four insertions within an area equal to a half inch square and to insist that at least three must be effective in order to have the cicatrix or marks satisfactory. Re-vaccination is now insisted upon as always necessary after a few years.

5. Through modification of type and through vaccination and re-vaccination we are far more apt than formerly to have mild and walking cases of the disease, so that by reason of this, far greater numbers are exposed to the contagion. In other words, unless vaccination and re-vaccination in all their details are followed up and become the universal habit of the people, smallpox or varioloid will be more largely diffused and more frequent. So that a real remedy becomes the means of extending the disease.

As to this point we note some cases which have quite recently come under our observation:

Within the past year there occurred at Red Bank, in this State, an outbreak of smallpox which seemed singularly persistent. We can generally leave sporadic cases, especially in cities, to local health boards and local physicians. In this case the endemic seemed persistent notwithstanding the ordinary precautions. It even happened that there was doubt between smallpox and chickenpox in early stages, by those of tact and experience.

How this can be is something of a mystery to the physician who has only seen typical cases of each disease and regards the distinction between a vesicle and a pustule as definite. A recent case presented in letters to the *London Lancet*, Dec. 9 and Dec. 23, 1893, by Dr. J. B. H. Smyth, of London, is illustrative. The writer could not conceive how any such doubt could exist until he met with a sporadic case of varicella, (chickenpox) studding every part of the body, and confluent at parts, and attended two patients in one family with varicella which an able neighboring practitioner had pronounced variola (smallpox) but which had been attended for that disease by myself only a few months ago. So late and so good an authority as Hebra regards them as very closely allied. In the epidemic referred to, some of the lighter cases were thus mistaken for varicella. In one case vesicles could only be found in the hair of the head.

Inquiry showed that many cases were so mild in this epidemic at Red Bank, that persons who had the disease were not confined to the house and so exposed others to the disease. The president of the health board there writes us: "One of our greatest difficulties has lain in the fact that a number of cases have been so mild that neither the persons themselves nor their physicians have known they were suffering with the disease. Only after other cases have occurred and they were traced to these people, have we been able to discover by their description of their symptoms, that they have had a mild form of varioloid. These cases while not sufficiently severe to confine the patients to the bed, or even to the house, have still been sufficient to cause the spread of the disease and it has been in this way, we think, that the disease sprang up so unexpectedly in different parts of the town. Other similar cases were reported and as re-vaccinations were made when numbers had been exposed, it was evident that in some cases the influence of the contagion was enough to cause some symptoms. It became apparent that important as re-vaccination is, it was incidentally becoming an occasion for the spread of the disease so that stricter inquiry and isolation were necessary."

A few weeks after, similar facts were found at Carteret, a small village in Middlesex County, in this State. Here one of the men traveled to Bayonne, Hudson County, with but little feeling of ill health. One woman examined had no evidence of the disease except two small pustules in the hair. All the cases were mild.

It is a strange record that we have also from the city of Reading, Berks County, Pennsylvania. A late bulletin, January, 1894, announced 710 cases with only 18 deaths and 29 cases remaining under treatment, and several fresh cases up to February, 1894.

Another point for us to note is, that some recent movements in England and some contributions to the literature of smallpox are such as make it essential that the study of the disease, and of vaccination as related thereto, be pursued with new zeal and with minute attention to all details and all facts bearing upon it.

Opposition in England to the law of compulsory vaccination is too formidable to be ignored. It has arrayed against it a strong constituency and has given rise to a most important parliamentary commission, already spending two years in its inquiries. It has shown, as in the case of Leicester, that quick isolation, disinfection, quarantine of exposed healthy persons and thorough sanitary police are very effective in dealing with the disease, although, especially in view of the more recent epidemic in that city, it is plain that the need of vaccination, as an additional protection there, has been greatly underrated. Although it is hard to have patience with some of the wild utterances of the anti-vaccinationists, we do well to review their facts and statements in a judicial spirit.

For a time they had no strong medical support,

but the various writings of so noted a pathologist and authority as Prof. C. Creighton, of Cambridge, (see his treatise on "Cowpox and Vaccinal Syphilis" and on "Jenner and Vaccination," and especially his article on "Vaccination" in the new Encyclopædia Britannica,) has contributed much to the apparent argument against vaccination. Still more serious became the scientific position when the learned bacteriologist, Prof. Edgar M. Crookshank, M.B., of University College, London, published 1889–90, two volumes on "The History and Pathology of Vaccination." His work is a sample of great research, is executed with accuracy and is learned and ingenious in its facts and arguments. He concludes that "the inoculation of cowpox does not exercise any specific protective power against human smallpox," and that it is destined to be replaced by the "more rational and comprehensible procedures of the compulsory notification of smallpox and the isolation of all cases of this disease."

"This in the face of the almost concurrent testimony of all nations and the testimony of the great mass of the medical profession, that it is the one great prophylactic that has interrupted what was once the most serious of human contagions, has immensely limited its frequency and fatality and has shown its capacity, when fully applied, for well nigh driving this great pest from the earth."

Dr. Creighton, too, in his more recent work, a "History of Epidemics in Great Britain," shows no change of view. We have in these high authorities and in the minority of persons agreeing with them, a remarkable disregard of clinical experience and no explanation of the accumulated facts as to the mitigation and prevention of this disease.

We regard "such statements as entirely opposed to universal experience; to experiences both of prevention of smallpox and of mitigation of its attacks; to experiences which belong to every quarter of the globe and which are far more to be trusted than the theories of comparative pathology, however suggestive and however interesting these may be."

Yet it will not do, amid such contentions and such opposition, to rest upon the facts of the past and the loyal declaration of our faith.

a. We must sift and weigh in full our evidences as the years go on, increase the number and accuracy of classified experiences. We must seek to adjust and harmonize the testimony of the clinician and the biologic pathologist. We must reëxamine sources of lymph supply, account for variations in effect, explain the greater apparent need of re-vaccination and so eliminate errors and fortify the truth in the spirit of scientific investigators and skilled practitioners. In the meantime we must rest boldly and strongly upon the present accepted practice and see to it that the people at large from childhood to age have protection from this marauding pestilence. As an instance of one of these cautions, at a recent meeting of the Society of Medical Officers of Health in London, Feb. 19, 1894, the President, Dr. W. T. G. Woodforde, insisted that "certificates of successful vaccination should specify the number and area of well marked cicatrices."

b. More systematic methods need to be instituted for the production and furnishing of vaccine lymph. At present the whole matter is left in the charge of single individuals, or firms, and it is often retailed by druggists, like any other commodity. This in the face of the fact that there are many different sources of lymph, that they are not of equal reliability, that there is much variation as to freshness of material and that the question whether a person shall have smallpox, or whether there shall be an epidemic thereof, often depends upon the potency of the single point used. The case is not at all analogous to that of the sale of an ordinary drug.

Dr. Snow, so long the Health Officer of Providence, Rhode Island, was so impressed with the ultimate results of this kind of merchandize dependence, that he kept and distributed through the country a supply of what is usually spoken of as the Jenner lymph, and favored the old method of arm-to-arm vaccination. This was not because he opposed bovine lymph, but because he thought this the safer method for permanent reliance.

It has already come to pass that some of our best health officers, notably Dr. C. N. Hewitt of Minnesota, are advocating a return to arm-to-arm vaccination, the bovine lymph being used to start new supplies. It is thus not meant to supersede, or to contend with bovine lymph, but while maintaining the old source to secure also a more reliable and ready supply of virus.

If the present method is carried out we believe that vaccination will be less certain in its effects, that re-vaccination will be more frequently needed and that walking cases will so multiply as to constitute a grave source of epidemic influence.

If this plan is not adopted, bovine lymph should be produced and distributed under national or legal methods and with strict oversight as to details. Never was so much loose vaccination done as now. We hear of 200,000 vaccinations in New York city without charge and many not returning to see if the result is complete.

On the other hand, in London, return is secured and the vaccination must be authenticated. Adopting this plan and having skilled vaccinators, we have the record last year, that of primary vaccinations at the central London station, 7,529 returned, and 7,448 had been successfully vaccinated. The 81 that failed were all successful on a second vaccination. On this plan vaccination will be found to be no failure. The recent article of Dr. McVail, in the second volume of Stevenson and Murphy's "Treatise on Hygiene," together with the constant results of skilful systems of vaccination furnish a complete answer to the contentions of a few biologists and to the charges of anti-vaccination societies.

Yet we sound not too soon this note of warning, for we believe that if the present loose methods are permitted to continue, vaccination will become less and less a preventive of smallpox and its enormous value be greatly impaired.

c. Local health boards and physicians, on the basis of large series of classified facts by competent observers, need to be more in unison as to the necessity for and frequency of re-vaccination. Layet of Bordeaux, a skilled authority, was successful in about 40 per cent. of his re-vaccinations after nine years, but we have no particulars as to various points, such as number of marks, etc.

The Pennsylvania Health Board hand bill, or poster, proclamation says there should be repetition in seven years. One, who represents the New York City Board, says ten years. The Local Government Board, Great Britain, names the age of 12. Many authori-

ties name 14, or in general the age of puberty. This vagueness we believe comes largely from imperfect vaccination at the start.

Dr. McVail says that "the rule, that re-vaccination should be performed at 10 to 12 years of age, is not founded on any theory that primary vaccination has then lost its protective power. The power of infantile vaccination against attack by smallpox remains to perhaps at least one-half of its original extent at 20 years of age, and its power against death exists to very considerable extent all through life, as abundantly shown by the statistics of the great smallpox hospitals." This certainly justifies the early vaccination, but is too indefinite for us to rest upon. A series of collective investigations should be made on these points.

The cities of New York and Philadelphia, with adjacent sections of their respective States and of New Jersey, still have outbreaks of the disease. It is occurring, and likely to occur, more than usual in various sections, by reason of the great increase in the number of nationalities that choose their nests in every city and there abide.

There must be more thorough work and more exact discipline as to this whole matter of vaccination, or else the disease will stalk abroad here and there much oftener than heretofore, the number of cases in proportion to deaths will increase, and now and then a severe epidemic remind us of its previous more fatal history.

We present a few of the questions which seem to us to stand in need of such authoritative answer as comes from series of closely studied facts and not as the mere opinions of a committee.

1. What legal or professional method should be adopted to secure a more reliable supply of bovine lymph?

2. How far is the older method of arm-to-arm vaccination still to be commended for adoption?

3. What mode of insertion of vaccine lymph is to be advised?

4. What directions should health boards and physicians give as to re-vaccination?

5. What measures are practicable in order to secure a more general primary and secondary vaccination of the population?

6. What after examination should be made, and what should be the form of vaccination certificate? Should it state number of points at which the insertion of lymph produced a distinct depression or cicatrix?

7. What quarantine or other restrictions should be placed on those who have been exposed to smallpox?

We think a committee should be appointed to furnish us facts and evidence touching each of these items, and then to outline a plan for the better securement of the results sought.

At present we name not as conclusions, but as suggestions, a few tentative answers as indicating lines of direction for inquiry.

a. There should be a National vaccine and distributing establishment for bovine vaccine at Washington.

b. Arm-to-arm vaccination should not be wholly abandoned. In our large cities, at least, physicians should arrange to have at hand certified, humanized lymph of which the sources are local and fully known.

c. Vaccination direct from a charged ivory point used for scratching, or from a needle, used but for one case, should be relied on.

d. Re-vaccination should be advised for all who have not been vaccinated within ten years, and ofener where there has been special exposure, or there is any doubt as to marks or time of first vaccination.

e. Children should not be admitted to public schools until vaccinated. Provision should be made to encourage general vaccination of infants and youth.

f. A vaccination card or certificate should be given stating time and place of vaccination or of re-vaccination, whether there was subsequent examination and at how many points the lymph had taken.

g. While time of quarantine must vary somewhat according to circumstances, persons who have been fully exposed, if not quarantined at once, should be under quarantine or watch from the ninth to the fifteenth day after exposure.

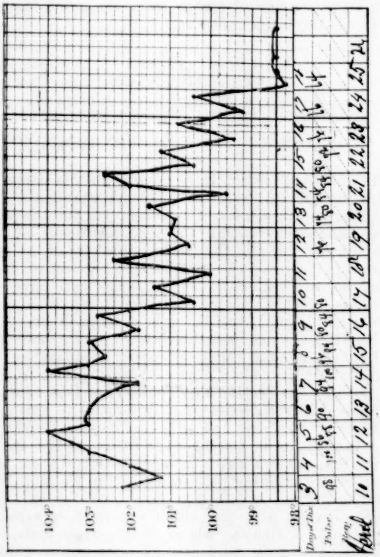
TYPHOID FEVER.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5–8, 1894.

BY JOHN ELIOT WOODBRIDGE, M.D.
YOUNGSTOWN, OHIO.

It was my intention to have made in this paper an effort to discuss from the scientist's standpoint the etiology and treatment of typhoid fever, but the positive expressions within the past few weeks of the opinions of many of the greatest thinkers of the age, that typhoid fever can not be aborted, and in fact, that the internal exhibition of drugs can have no curative effect, warns me that I have essayed enough and that this paper had better be devoted to strengthening the evidence that the claims already made are valid, and avoid as much as possible enlarging the territory which I shall have to defend. I feel that I do not owe the Section any apology for this change, because this is a disease that according to eminent authority "destroys annually the lives of 50,000 of our people, leads to the very brink of the grave more than half a million more, which during the next twelve months will inflict upon us more injury, suffering and death than any foreign foe could possibly do," and which, I believe, is rapidly increasing. A disease whose geographical distribution is limited by no boundary lines, whose germs may live indefinitely in the icebergs of the frozen North, and thrive in the torrid heat of the equator, can not be accorded too much attention by this ASSOCIATION, especially as the medical literature is in such a chaotic state as to be exceedingly confusing to those who place any trust in it. A literature which is not at all creditable to the medical profession as long as its recommendations for treatment form such a medley of contradictions, from "armed expectancy" to the most heroic exhibition of the most dangerous therapeutic agents, from corrosive sublimate to the coal-tar derivatives, including almost every known poison, and all having most enthusiastic devotees until finally, the materia medica having been taxed to the limit of endurance, a new class of enthusiasts has arisen, and now the bath-tub and sponge and the cold pack have their advocates who can see nothing but dire disaster in the use of any

therapeutic agents except cold water. And the most amusing, were it not the most tragical publication that has ever issued from any press, is the Johns Hopkins Hospital Report, Vol. iv, No. 1, on "Typhoid Fever," which I have just received, in which the learned Professor of the Principles and Practice of Medicine of the Johns Hopkins University asserts, and I quote him literally: "Since typhoid fever like a majority of the specific infections runs a course uninfluenced by any known medicines, the duty of the physician is to see that the patient is properly nursed and fed and that dangerous symptoms should they arise are combated by appropriate remedies. In hygienic and dietetic measures his activity is incessant; so far as drugs are concerned his attitude is best expressed in the term 'armed expectancy,' giving no medicine simply because the patient has a fever; nursing and diet are the supports in which we



Case No. 67.

trust, the essentials under all circumstances to which is added the cold bath, when possible, or cold sponging for the antipyretic action and stimulating effect. Medicines are not as a rule indicated. No known drug shortens by a day the course of the fever. No method of specific treatment or of antisepsis of the bowel has yet passed beyond the stage of primary laudation."

During the past year I have written papers under the title "Can Typhoid Fever be Aborted?" for the Mississippi Valley Medical Association, the Mahoning County and the Ohio State Medical Societies, in which I presented evidence that typhoid fever can be and has been aborted, which would have been accepted as absolutely conclusive in any profession save that which in America's most cultured city failed to find the discoverer of ether until he had lain for a generation in an unhonored grave, and his widow had lived long in poverty and, I fear, even in want; and which in the most enlightened capital of the Old World made the life of the discoverer of vaccination immeasurably burdensome.

These papers show that after having had, during the ten years from 1866 to 1876, about thirty deaths from typhoid fever, with an average duration of illness of those who recovered of about thirty-five days, I abandoned the symptomatic treatment now advocated by some learned professors and began in 1876 with extreme caution to treat typhoid fever under the same general principles which crudely govern my practice to-day. That after having had unusually favorable results for four years, in 1880 in my local society I condemned all known methods of treating typhoid fever and foreshadowed the brilliant results I have since obtained from the principles of treatment then laid down. That in 1882 I declared hemorrhage of the bowels would be unknown if the disease were properly treated, saying I believed that a law sending to State prison a physician having such a result would be wise and beneficent. That in 1890, to emphasize my statement that typhoid fever could be aborted, I offered to compensate any member of my society for every visit made to a patient after the tenth day of treatment. That for several years I had invariably given a favorable prognosis, and that for more than thirteen years I have had no death from typhoid, malarial or any continued fever. With each of these papers I presented up to the date of its reading the histories of the most interesting and characteristic cases, exhibiting the bedside charts of all the cases treated since June 25, 1893, when I first began to keep accurate bedside records. They were all freely discussed by many of the ablest members of both my local and State societies. The charts were verified by the members who had seen the patients and my statements were endorsed.

The criticism of my paper read recently before the Ohio State Medical Society was highly gratifying to me. The discussion was opened by Dr. Collamore in his happiest vein. The general tenor of the remarks were in favor of giving progressive ideas a warm welcome and a fair trial. There was present but one member from Youngstown—Dr. J. E. Cone—who said: "Being from Dr. Woodbridge's town and society, I wish to say that we have had several 'fights' on this subject and we have been watching his cases for several years to see if he could make his pledges good, but so far we have been unable to discover that he has made any failures or had a death from typhoid fever. And we intend to continue watching his cases in the future, and if he has a death we will report it." A little speech which read between the lines speaks volumes. Prof. Murphy, however, spoke eloquently in adverse criticism, saying in substance that there could be no curative treatment for typhoid fever and he doubted the correctness of the diagnosis and observation of any physician who asserted he was able to abort the disease. He said I shocked him when I said I allowed my patients to sit up, walk about, and even to eat solid food. I shall not attempt to quote Dr. Murphy's words or essay the hopeless task of reproducing or even describing his eloquent speech, but as I sat spell-bound listening with admiration to his brilliant oratory, I could not help wishing that he could see the subject as I see it, and were speaking for, instead of against the right; and not long since

after having read a paper before a medical organization composed largely of the teachers in one of our boasted centers of learning, the same general expressions of opinion were made, one gentleman saying: "If there is anything in medicine that is well established, it is that the course of the disease (typhoid fever) can not be interrupted." Another gentleman who, as I judged, from his special learning and ability had been given the closing argument against my theories, criticised these charts very severely, saying: "With four or five possible exceptions there was not a typhoid fever case among them;" evidently forgetting that they are presented to show the modification of the "curve" by antiseptic treatment; that most of the patients were examined and the diagnosis verified by physicians quite as cautious as himself, and that if the "curve" had remained unmodified the treatment would have been a failure.

These oracular assertions (they can not be called arguments) should never have been made. We know too little of the action of antiseptics, too little of the bacteriologic world, of the antagonisms existing between these minute denizens to warrant any gentleman, however learned, in placing his individual opinion above the evidence of years of experience, and the testimony of a score of physicians quite as competent as himself to make careful observations and exact diagnoses, especially when among these observers are included several ex-Presidents of our local Society and at least one ex-President of our State Society, or in placing himself as a stumbling block in the pathway of investigation and progress. Had they anything better to offer, their opinions ought to be carefully weighed, but when they oracularly assert that a course of treatment which they have never tried and of which they have no knowledge can do no good, they are simply lending their learning and the weight of their great names to aid in retarding the day when typhoid fever shall cease to be at once the stigma and the despair of medicine.

In you accept the theory that typhoid fever is caused by a germ, you must accept its corollary, that the germ can be destroyed, and if in one receptacle, or the alimentary canal of one patient, then as a legitimate sequence in every one, and if the physician who accepts this theory sees his patient sufficiently early and treats every suspicious case on the first appearance of suspicious symptoms, he will rarely see a typical case of typhoid fever, and never a death from the disease. Now the simple fact that I have had no death from typhoid fever for more than thirteen years is alone strong presumptive evidence that the claims I make are well founded, and when taken in connection with my previous record and with the statement of the last President of our local Society, when one of my earlier papers was under discussion, that he had no doubt that I had treated more than my full share of typhoid fever, entitle the subject to careful consideration. Since the unaided efforts of one man, however faithfully he may pursue his investigations, must be long indeed in accumulating sufficient data upon which to base a scientific discussion of the subject, and longer in giving such expression to the finished work as to command the attention and the confidence of the great body of a profession peculiarly prone to look upon anything *new* with a great deal of suspicion; I therefore appeal to every member of the AMERICAN MEDICAL ASSOCIATION, and to every physician who treats a case of the disease, to aid me in the accumulation of such data as shall lead to a better knowledge of typhoid fever, and especially of the action of antiseptics in its treatment. For this purpose, and because I have been unable to find a clinical chart so arranged as to make the collection of necessary data practical and easy, I have devised one that will enable the busy practitioner to make his record valuable with the least possible loss of time.

In conclusion, I wish to call attention briefly to the treatment which has already been published, and to say that with wider experience I hope to be able to eliminate some of the ingredients which give the formula such a complex and unscientific appearance. I am still using the formula as already published, viz.:

R Podophyllin	gr. i.
Hydrarg. chlor. nit.	℥ i.
Guaiacol carb.	℥ vi.
Thymol	℥ v.
Menthol.	℥ i.
Sacch alb.	℥ ii.

alternated with the

Eucalyptol	5 x 10 m.
Guaiacol	2 x 5 m.

No pretense is made that this is the *only* preparation which will cure typhoid fever, nor that all or any of its ingredients are necessarily essential, but because thus far it has not failed me,[1] and crude and unscientific as the mixture appears I know of nothing better, and I hope no gentleman will say he has given my treatment a trial and failed, who has not exhibited these identical mixtures, alternated as directed; nor must he interject anything calculated to interfere with their effect. As the mixture is practically harmless it may be exhibited in almost unlimited quantities. I, however, advise beginning with exceedingly small doses and thus avoid early catharsis.

As I stated in a former paper, I am ready to go wherever in the wide world typhoid fever claims a victim, whether it be across the continent or over the ocean's broad expanse, and I challenge the publication of any failure.

DISCUSSION.

THE CHAIRMAN—This is a paper upon a well-known subject, one in which you have all have had cases, and I hope it will be thoroughly discussed. It is somewhat unique in character and much can be said upon it.

DR. WASHINGTON AYER—The paper certainly commends itself to this Section as being upon a subject of great interest. That the gentleman should have been so very fortunate in the treatment of his cases is certainly noteworthy. I understand that he does not treat the disease, but rather the symptoms. Is that so? that you do not confine yourself to the treatment of the disease especially, but rather the symptoms, as they present themselves, of typhoid fever?

DR. WOODBRIDGE—I would say that the symptoms of typhoid fever could not be treated; that I pay no attention to the symptoms for that treatment, but as an evidence of the result of past treatment.

DR. AYER—In case of severe diarrhea, as the fever sometimes begins with that as one of the prominent symptoms, I suppose that a little opium or Dover's powders, or something of that kind would be admissible and not interfere with the general treatment? I have had considerable experience myself in the treatment of typhoid fever, some in

[1] The accompanying chart, No. 67, shows the need of more exact knowledge in the use of antiseptics, since I twice discontinued the use of formula No. 1, only to find the temperature again going up, and to be forced again to resume it.

my very early practice, and some in California, having been practicing here for nearly forty-five years. I must say, however, that my cases in California have not been of that severe type, as a general thing, that occur in the East, and that I have been treating my cases more upon a hopeful than perhaps a thoroughly prescribed course of treatment. I would like to hear any explanation upon the matter by the author, if I have not properly understood the paper. A fever that has caused so much anxiety among physicians, and especially in districts where it has prevailed as an epidemic—with such a disease, a treatment by which it may be cut short and the terror removed from the household is certainly deserving of the most careful consideration, whether it be looked upon as a combination of remedies strictly scientific or otherwise. The treatment is certainly new to me, and I hope the gentlemen here will feel at liberty to give a careful expression of their sentiments upon this so important question. I understood the author of the paper to say he never had any hemorrhage of the bowels in typhoid fever. No appearance of blood in any of the evacuations, I would ask, or do you confine it to the more strict interpretation of a hemorrhage? In many of the severe types of typhoid fever, those which approximate that, we formerly made a distinction between typhoid and typhus fever; the type of that fever in the early days came from the ships that brought passengers from Panama here—in those more severe types, I say, that was a very severe test upon the skill of the physician, and of the effect of the remedies. A very large percentage of the cases that were treated by the physicians here at that early time were fatal. Yet, I must say, my treatment, even in those grave forms of the disease, was not formulated exactly according to the prescribed rules for treating the disease, for I used towels wrung from cold water, applied frequently over the region of the heart, and found great benefit from that method. The application of cold water afforded great relief to the patients, reducing the temperature of the body and the action of the heart; if the heart is stimulated by the decomposition of foods in the stomach, or from whatever other cause we might say, the friction, as the cold blood is thrown through the arterial system, increases the heat at the surface. My theory was that the application of cold lessened the heat of the blood, and thus afforded relief to the patient and hastened convalescence.

DR. A. W. PERRY—I have listened to this paper with a great deal of attention, and although I have been putting into practice some of the principles that the author has given in his paper, yet this paper has convinced me that my former action was to a certain extent correct, and it has given me the reason for what I have done. My experience has been, like that of Dr. Ayer, considerably in California, and here the disease is not of the severe type that it is in the East. My cases have been cases where the patient has very generally recovered from the fever within twenty days. The treatment that I adopt is principally an antiseptic treatment, although I do not use the antiseptics that are mentioned in the paper. The antiseptics that I use are hydrochloric acid, about two drops every two hours, and carbolic acid given with it, and sometimes iodin. We know that the intestinal canal is full of bacteria in health, and what keeps them from multiplying here is the germicidal action of hydrochloric acid, and by keeping the stomach in an acid condition we not only prevent the multiplication of these bacteria but we destroy their activity as well. The carbolic acid that I give has about the same effect, I suppose of the guaiacol that is in this mixture of the author's. I also use the eliminary treatment to some extent, begin with a dose of calomel, and I have no trouble with diarrhea. I have rarely had occasion to give a remedy to stop the bowels; I think it would be poor treatment. I pursue this antiseptic treatment steadily throughout the disease unless the temperature rises very high, and whenever the temperature rises about 103.5 in the rectum I give frequent cold baths, baths of about 80 degrees every two hours until the temperature comes down. This paper has shown me that I have been on the right track, but have not gone far enough and I shall in future use antiseptics more thoroughly.

THE CHAIRMAN—I would like to ask the author, have you in any case aborted an attack of typhoid fever?

DR. WOODBRIDGE—I have, yes. I have had cases that seemed to be typhoid fever, and that I was sure from every symptom were typhoid fever, and the fever was broken down in nine or ten days. I was rather disposed to doubt my diagnosis at first. Future investigations, however, led me to believe that I have aborted the fever, and that the cases were typhoid fever.

THE CHAIRMAN—The generally accepted doctrine as has been often stated is that we can guide the patient through the fever, but can not abort it. That has been my experience. I have had cases where for nearly a week the temperature would range from 105 to 106, but I never saw a case that I thought I had aborted. I have had one case within a year with three relapses. The patient was confined to her bed for over seventeen weeks, and I failed to make any appreciable effect upon the fever with any remedy used.

DR. COLLINS—I would like to ask the author of the paper upon what basis he diagnosed the typhoid fever in those cases reported cured in seven or eight days. In my cases the diagnosis has been based largely upon the length, the duration of the fever. I think many of us have had cases which resemble typhoid fever very closely, but in my opinion, until we have had results, wo have no basis upon which we can say surely that the patient has suffered from typhoid fever. Many of us have had cases which have recovered at the end of seven or eight days, which I have always looked upon as infection cases, where we have had poisoning of the patients, where these symptoms, and symptoms very much like typhoid fever appear at the beginning. It is only after a course of three or four weeks that we are able to say at our post-mortem absolutely that it has been a case of typhoid fever. Therefore, I ask the Doctor upon what he bases his diagnosis in these cases where the fever is arrested so early.

DR. KENT—I would like to say that in the mountainous region of this State there are quite a large number of these continuous fevers which are put down very often as typhoid fever; they run a course of anywhere from three to ten weeks. I believe the only symptom upon which they make diagnosis is the temperature and the peculiar feeling of the legs that accompanies them. I believe that a great many of these cases can be cured by almost any good treatment, and I believe a great many are put down as cured of typhoid fever when they have not suffered from typhoid fever at all. Some gentleman in Colorado—Leadville, I believe it was, published in the *Philadelphia Medical News* a series of these cases in which he took the ground that these cases of continuous fever were not typhoid fever, and that with a little proper alimentation and a little common sense the patients recover in from six to seven weeks.

MR. WEIR—I was so unfortunate as not to hear the paper under discussion read. Having been only ten years in the practice of medicine I have some timidity in rising here, where I shall put myself on record as one of the profession who has faith in the abortive treatment of typhoid fever. I have been called to cases in which there was a muffled sound of the heart, in which there was a rise in temperature from the morning to the afternoon, and where all the other symptoms common to typhoid fever have existed, and my diag-

nosis was incipient typhoid fever. And I hastened at once to begin the use of intestinal antiseptics. I used the hyposulphite of soda and muriatic acid. I clear out all of the organs of elimination. And I will have to take issue with one gentleman when I say that in my experience in one or two cases I have found constipation; the rest of the cases were decidedly diarrhetic. I was then confronted by members of the profession who said: "Doctor, there is an error in your diagnosis; it is not typhoid fever in the patient, but the trouble is professional cerebral inaptitude." Mr. President, that put me on my mettle. I got down my Flint, I got down my Costa, and my Guttman, and my reference note-book, and other works, and I began the study of the abortive treatment of typhoid fever. What I discovered there was truly surprising. There were statements made by men of eminence, whose diagnostic powers have never been questioned, that I would not have believed had they not been matters of record, had they not been in black and white, and, to my knowledge never refuted. I was told there that there had been cases of typhoid fever that had been aborted that were of only three days' duration. I was told in these references that there were cases of typhoid fever that had been aborted in seven days, in nine days, in fourteen days, in twenty-one days. I was told that there were cases of typhoid fever in which there had never been a rise of temperature. Now, I didn't know I was going to get on the floor here, or I would have had my references tabulated, and give you the pages, and the statements.

Now, gentlemen of this Section, you know nothing of me; I am an entire stranger to you. Just to show you to what lengths I have gone in typhoid fever, I will state that in one case I had a condition of relapse of seventy-two hours. In that time I gave four hundred injections of brandy hypodermically; I gave one and a half ounces of carbonate of ammonia, in doses of 1 to 10 grains at a time. I rendered his blood in such a condition that he became just one entire mass of erythema. But I would rather have a live typhoid recovery than a dead therapeutic failure.

And I take my place on the floor to state emphatically, that I am an absolute believer in the efficacy of the abortive treatment of typhoid fever.

DR. WOODBRIDGE—These gentlemen will get so much for me to answer if they speak much longer that I will not remember more than half of what they say. The gentleman who has just spoken is right; that the time has already come when the profession must recognize that typhoid fever can be aborted. And I say that the time will come when it will be more of a disgrace to any member of the profession to have a death from typhoid fever than it is to-day to have a death from measles. The evidence has been before you since typhoid fever was first known. It has been a matter of record through all time that there are a very large number of cases of so-called aborted typhoid fever. They were simply cases in which the physician, unwittingly, perhaps, placed something in the stomach or alimentary canal that destroyed the germ. And, if that is the case, why not take it a step farther and use it in all cases? It seems to me that if you accept, as I say in my paper, the theory that the germ itself is present, you must accept the corollary that the germ can be destroyed. If it can be destroyed in one alimentary canal, why not universally? You do not treat typhoid fever. The physician who practices the methods of the past will not treat the patient at all. The gentleman who first spoke asked me if I would administer opium if the patient had diarrhea. I say most emphatically, no; no astringent whatever. Don't interrupt nature in her good work, but rather, if your patient has diarrhea, give him a dose of salts. But I wish to give the effect of my antiseptic. I am not a stickler for this particular formula; I only give that because it is the one that seemed to me the most useful. There are probably hundreds of others just as good; anything that will thoroughly cleanse the alimentary canal is good; plenty of hot water might do it. Even though your patient has diarrhea at the beginning, administer this preparation, which is a cathartic in large doses, and you will stop the diarrhea. One gentleman said that when the temperature got to be 103.5, he gave cold baths or sponges. I think that is wrong. I think that anything that reduces the temperature is detrimental, except as you have seen that I use eucalyptol. I was called to one case on the sixteenth day when the temperature was 105, the abdomen was greatly distended, and when the lips were glued to the gums—and right here I wish to say that the gentleman didn't understand me rightly when he understood that I never had hemorrhage of the bowels. I have had two. What I say is this: If the patient is properly treated from the beginning, he will never have a hemorrhage of the bowels, and I mean, too, the slightest seepage of the blood. I mean that the result of the treatment will be that there will be no hemorrhage; if you administer this or some other antiseptic the symptom will not appear, and the evidence that the germ is performing its work upon the glands will be conclusive that he is no longer doing any such work. Although I may be wrong I believe this: That the germ of typhoid fever as a germ, as a living germ, although he may have been living buried in the glands of Peyer, is harmless; the idea that he throws off a germ that produces all this is, I think, an error.

Now, it took me eight or ten years to believe that to be typhoid fever. There is no man living so learned that I would have accepted his statement fifteen years ago, that typhoid fever could be aborted. I was so strongly convinced in the matter that when a man told me he could abort typhoid fever, I would have said he has either made a mistake in diagnosis or he has not given a statement of fact. But some of my grievous mistakes taught me that typhoid fever can be aborted. I don't mean to say that because I have taken cases at the eighth or tenth day and aborted or cured the disease, that every case at that stage can be aborted; but I do say that if you will regard it as a case of typhoid fever and treat it by this method from the very start it can be cured, can be aborted. And this treatment is not only the best treatment for typhoid fever, but it is the best for any disease that is taken for typhoid fever—for diphtheria or pneumonia. I know of no better treatment for diphtheria than the use of some of these antiseptics. And I say that for the purposes of this treatment, make the diagnosis not when the rose spots appear, not when the bowels are intensely distended, but when you see the very first indications. Let not one moment of time pass.

I want to answer one question by a gentleman as to how I could diagnose a case as typhoid fever where the fever was aborted on the eighth day. If you treat typhoid fever you will often see cases where you can make a positive diagnosis. As a general thing on the charts you will find a little figure in the left hand corner, showing the number of physicians, one, two, three or four, who have confirmed the diagnosis. I would never have dared to go before the profession and state what I have here if I had not the statement of a score of physicians, and men as able as any one; men of high reputation as diagnosticians. It is one of the worst statements that was ever made that typhoid fever can not be aborted, the many men of high standing to the contrary notwithstanding, though no man appreciates more than I do the great learning and ability of many of them; they have been stumbling blocks in the way of progress in this direction beyond a doubt. But to return to the gentleman's question as to how I would make a diagnosis when the disease was aborted on the eighth day. I have in several instances had patients eating beefsteak when they were yet covered with rose spots, the other symptoms having disappeared before that. In order to reach that it is necessary that the patient should be properly treated from the beginning. I do not mean that it is wise to let every patient eat beefsteak, but, to repeat, if you will treat them as I say, they may walk and eat beefsteak, and it will do them no harm.

THE LAW OF EQUIVALENCE IN MEDICAL SCIENCE.

Read in the Section on Practice of Medicine, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY R. W. MURPHY, M.D.

SAN FRANCISCO, CAL.

There is a law of exact equivalence which pervades all nature. This law while perhaps most emphatic in mathematics, in music and in chemistry, is none the less true in the evolution of mineral, vegetable and animal development. The same is also true of all the various diseases when considered in relation to their antecedents.

It was not until the germ theory attracted the attention of scientists or rather was brought to light by scientists that much attention was paid to the antecedent of diseases; the effect was only considered

and treated by our physicians. Each separate disease or ailment must be the equivalent of the producing cause, and any remedial agent that cancels or cures the disease must stand as the equivalent of the antecedent producing it. This proposition being correct, would lead us to first consider the importance and value of a prophylactic.

We all know that vaccination with a specific virus will prevent smallpox. This being true, vaccination must stand as the equivalent of the antecedent that produces it.

The French scientist, Pasteur, has given to the world a prophylactic for hydrophobia which must ever stand as the equivalent of that much dreaded malady. The world renowned Prof. Koch, of Berlin, thought he had not only found a cure but also a prophylactic for phthisis, but as yet his feet do not rest upon the sure foundation of scientific truth where he can unfurl his banner with Eureka written upon its folds. But we predict the time is near at hand when medical science will not only find a cure but a prophylactic not only for phthisis, but also for cancer, for Bright's disease, and other diseases now considered incurable which are known to be hereditary.

Examine minutely, with the best glasses, the germ cells in the broad field of biology and you detect no difference in them, but let the life germ become vitalized and development take place, as evolution proceeds we find that at a certain point a weakness, a lack of the normal strength and vitality is shown, and if not checked will soon get beyond our control, but if medical science can furnish a prophylactic, and the rising generation liable to hereditary disease receives timely treatment, we may not only ward off but soon render the lineage immune, so that heredity will not be known.

The diversity in the type of disease must ever be in strict accordance with this law of equivalence. We may not be able to tell how many bacilli are necessary to produce typhoid fever or scarlet fever or diphtheria, but as we have the mild and the severe or malignant types, everything being equal they must ever be in a ratio of exact equivalence to the antecedent.

But what claims our attention more particularly at present is the great diversity in the treatment of the same disease by our physicians.

In the January issue of the *New York Medical Times*, on page 17, the editor says: "That at present a large part of the effort at teaching materia medica is thrown away because it has no practical application in the treatment of diseases. Graduates of medicine are turned out with little idea of what to do with drugs in treating the sick, and many even doubt whether they are of any use whatever, because teachers and students are all at sea respecting their adaptation. It is time that we should have more practical text-books from which students may individualize the action of drugs according to effects produced by maximum and minimum doses, for this is the only basis upon which a decision can be reached in regard to the selection.

The primary and secondary symptoms furnish no reliable data in this direction as claimed by some. The physician in the future will be a man who recognizes the dual action of medicine and governs his practice accordingly.

The dual action of medicine upon the system, closely observed, may lead to the dose which will be the equivalent for the error to be corrected, neither too small nor too great.

Our text-books and our teachers in medicine do not agree as to the dose of medicine to be given even in the same disease; the great range of latitude so marked among our doctors has led some to place the practice of medicine outside the pale of science.

I knew a doctor to give a patient 40 grains of calomel at one dose and in three hours repeated it; while one of our leading physicians tells me he gets very satisfactory results from one-twentieth of a grain in adults and one-fiftieth of a grain in children, given every hour or every two hours. In hepatic trouble 10 or 15 grains is very frequently given to be repeated once in four or six hours.

In the use of quinin we also find the range from the minimum to the maximum to be very great. Some will advise 2 grains, others will advise 4, others 6, and others 10 grains once in three hours. Some will advise 30 grains at a dose, to be repeated every three or four hours. We are told, in Japan and in Southern malarious districts they often give 40 and 50 grains at a dose.

Several years ago a very wealthy man in St. Louis was taken with a severe congestive chill. Three or four doctors were called, Prof. McDowell among others. The patient's jaws were set so they could not administer anything by the mouth. Dr. McDowell put an ounce of quinin into a pint of warm water, stirred it up and gave it all by enema at once. This case was reported to me by Dr. A. C. Donaldson, who was present at the time. The patient recovered but his eye-sight was not so good as it was before the attack. Whether it was due to the large dose of quinin or to the excessive congestion they could not tell.

But it is not in quinin or calomel alone, but in nearly all the drugs in use do we find this diversity of doses among our professors and teachers and doctors; until one is ready to ask the question, Do we all belong to the same school?

Should we not study the dual action of all the various medicines until we find the equivalent doses to give?

But another remedial agent of great value that is used without the slightest regard to the law of equivalence is electricity. Many of our doctors use batteries without any indicator to determine the strength or quantity given, and but few study the temperament and vitality of the patient, but place them all in the same class. Many are benefited by the treatment while others are made worse. If there is any agent that should be studied and used in strict accordance with a law of equivalence it is electricity.

It must be apparent to all that there is a lack of practical scientific unity in the medical profession. The day of experiments upon our patients should be a thing of the past. It is the scientific discoveries of our profession and their application in the healing art that has drawn the lines so sharply between the regular and irregular schools of medicine. We should not be satisfied simply because we excel all other schools of medicine; we should not be satisfied or stop short of absolute scientific perfection in all the various branches belonging to our noble profession, and with the pages thus illuminated by science our young physicians will be able to trace clearly the lines of equivalence from antecedent to subsequent, and treat their patients accordingly.

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SATURDAY, AUGUST 25, 1894.

MALIGNANT GROWTHS AND THEIR TREATMENT BY THE ANTAGONISTIC PRINCIPLE OF ERYSIPELAS.

Of the questions that have been brought to the attention of the medical profession within the last year, decidedly one of the most interesting is that of the effect of erysipelas and the toxic products of erysipelas upon malignant growths. We have had for many years sporadic observations and suggestions as to a remarkable effect of intercurrent attacks of erysipelas upon malignant growths; but these have been for the most part vague and uncertain, and, perhaps from lack of convincing scientific verification, have not been regarded as more than doubtful clinical curiosities. Recently, however, under careful and systematic investigation in various quarters the subject has developed unexpected interest, and equally unexpected importance. The results, indeed, of this investigation which are being published from time to time, would seem to indicate that the subject merits the wide attention that it is unquestionably receiving.

The most extensive study of the subject that has been presented is that by DR. WM. B. COLEY, of New York City, who has embodied his experience in two papers published in the *American Journal of the Medical Sciences*, the first in May, 1893, the second in July of this year. These two papers present the record of forty-four cases of malignant growth, treated either by inoculation with erysipelas or injection of its toxic products. In the first paper DR. COLEY reported ten cases—six of sarcoma and four of carcinoma—treated by inoculation with pure cultures of the streptococcus of erysipelas. Leaving out of consideration for the moment the effect of the treatment on the tumors, the immediate result of his experience was to show that the production of erysipelas by direct inoculation was an uncertain procedure and one not free from danger. More important than this, he found that in cases in which erysipelas was not produced a definite group of symptoms followed the injection of the pure cultures, consisting of severe chill, rapid rise of temperature to 103 or 104 degrees, nausea and prostration—a group of symptoms, in fact, exactly representing the stage of invasion of erysipelas and further, he found that this constitutional reaction was accompanied by changes in the malignant growths which resembled in all essential particulars the changes produced by true attacks of erysipelas. From this he was led to the interesting inference that the active principle in the process was the toxic products of erysipelas and, following that, that in all probability the beneficial effects of the treatment could be obtained by injecting the toxic products alone, without subjecting the patients to the risks attendant upon true attacks of erysipelas. Subsequent experience has established that this is true; so that the method has now resolved itself into the injection of toxic products.

His second paper, therefore, presents us with a series of cases treated, all except one, by the injection of the toxic products of erysipelas. Some of these were treated by the injection of the toxic products of erysipelas alone, but in most of the cases these were combined with a lesser quantity of the toxines of the bacillus prodigiosus. This modification was suggested to COLEY by the experiments of ROGER in BLOUCHARD'S laboratory in Paris, who found that the presence of the bacillus prodigiosus in cultures of the erysipelas streptococcus markedly increased the latter's virulence; and the combination, by increasing the effects of the erysipelas toxines, has proven a distinct advance in the technique of treatment.

In the second paper there are recorded the histories of thirty-five cases (which includes one case counted in the first paper)—twenty-four of sarcoma, eight of carcinoma, and three of sarcoma or carcinoma; we have, therefore, including the ten cases in the first paper, a series of forty-four cases of malignant growths treated by this method. As to the carcinomata and the three cases of uncertain character perhaps, for the sake of clearness as well as brevity, we had better omit them at once from consideration; for while the effects of the erysipelas toxines upon carcinomata have been of a very favorable character, the results thus far are not conclusive.

With the sarcomata, however, the facts presented are worthy of careful consideration. Twenty-nine cases are reported that have been treated by this method; and the results in these twenty-nine cases may be put briefly as follows:

One case of recurrent sarcoma of the neck and tonsil, which had been operated on by DURANTE, of Rome, and afterwards by BULL, of New York, and

which had passed beyond the hope of successful surgical interference is well, with only a trace of tumor left and no indication of recurrence of malignancy three years since cessation of treatment.

One case, equally as desperate as the foregoing is well, with no indication of recurrence fourteen months since leaving off treatment.

Two cases are well with no indication of recurrence, twelve months and three months, respectively, since leaving off treatment.

One case, a sarcoma of iliac fossa, is well one year since beginning treatment, with the tumor one-third its original size, and with all traces of malignancy destroyed.

These cases, it may be remarked parenthetically, are not offered as inoperable sarcomata on COLEY'S own authority, but all of them have passed under the critical observation of expert pathologists and surgeons, who have decided as to their character.

Of the twenty-four cases making up the rest of the series, eleven cases, some of which are still under treatment, showed marked improvement; ten slight temporary improvement; three no effect. Of the eleven cases classed as showing marked improvement much more could be made, were it not desirable in dealing with so treacherous a subject as the curative treatment of sarcoma, to exclude as far as possible all uncertain data. But it would seem that their aid is not necessary to give interest to the subject. Five cures in thirty cases is not a high record as percentages go, but when one remembers what "inoperable sarcoma" means, is it too much to say that these results are startling? What else, besides death, has ever been known to check the course of inoperable sarcoma before?

Finally, it remains to be said that other observers are confirming in their own experience the remarkable results reported by COLEY.

QUININ IN CHOLERA.

Although it might have been reasonably hoped that the remedial treatment of Asiatic cholera had lost practical interest for the profession in this country, the steady western extension of the epidemic in Europe and the recent disturbing appearance of cases in the Thames, hint at a contingency when it may become necessary to begin again the hitherto almost fruitless task of therapeutic experiment with this disease. Such a consideration lends especial importance and timeliness to the results of the researches of DR. FULLERTON, as set forth in his paper[1] read before the Ohio State Medical Society at its meeting of May 16, ult., and in which he arrives at the conclusion that, "If there is any reasoning in therapeutics—either by analysis or by synthesis, the American method that has done so much, or the Continental, that has promised so much—with vigilance, activity and bravery, the mortality from cholera should not in the United States exceed 5 per cent."

These be brave words to use with respect to a disease which, according to HIRSCH, levied an average toll of 54.74 per cent. in the epidemics between 1852 and 1873—the lowest mortality (Pesth, 47.15) and the highest (Bengal, 64.85) for the period, being in the latest year, 1873, thus conclusively showing no gain in its therapeutic treatment during that period. And the showing is no better since HIRSCH. Our epidemic of 1873 gave a mortality of 51.65 per cent., that of the recent epidemic in Western Europe, 52.38 per cent.

Though DR. FULLERTON begins his argument deductively, on data furnished from the laboratory of PROF. KOCH—the results of experiments to determine the agents which kill, and those that only inhibit, the growth of the cholera spirillum—the bulk of his paper is made up of empiric observations on the use of quinin in the treatment of cholera by a number of authorities between 1831 and 1873, and these are by far the most convincing and the most valuable in support of his advocacy of the salt. Reference must be made by those interested to the original paper for these details, but space is here given for the following practical conclusions:

"Ten grains (of quinin) in powder, diffused through a small quantity of water, or in acid solution, at hourly intervals, until twenty to forty grains have been given, afterward *pro re nata*, should be the ordinary instructions; the same dose at half-hourly intervals for a sufficient time in collapsed or in *foudroyant* cases; smaller doses, perhaps, at longer intervals in choleraic diarrhea. There should certainly be retained, of other treatment, appliances for the restoration of heat; saline hypodermoclyses to supply lacking serum to the blood; morphin hypodermics to allay pain and cramps, with enteroclyses of quinin where, as past experience shows rarely to have been the case, the remedy is vomited; and in the sequent enteritis or otherwise persistent diarrhea, calomel in small doses should not be lost sight of. That by so treating our patients we may hope for a mortality in collapsed and collapsing cases of about 14 to 25 per cent. only; that by earlier administration of the remedy, instead of the use of other agents that have heretofore permitted so many cases to run on into collapse and death, we may reduce the mortality in such cases to 2 to 5 per cent. only, seems a fair assumption for the best of reasons—*i.e.*, it should be so, and so far it always has been so."

[1] Is There a Better Remedy in Cholera? By Erskine B. Fullerton, A.M., M.D., Columbus, Ohio. N. Y. Med. Jour., Aug. 18, 1894.

CORRESPONDENCE.

LETTER FROM EUROPE.

No. IV.

MUNICH, July 21, 1894.

To the Editor:—In my last letter written several days ago, I promised to say a word concerning the work in obstetrics, gynecology and diseases of children, in Prag. I will be very brief indeed and speak only of a few points that seemed to me of special interest.

The obstetrical and gynecological department is presided over by Rosthorn, a young man in his thirties, who was called, I believe, from the position of privat-docent in Vienna

to a full professorship in Prag, an unusual honor, especially in the case of so young a man. He is looked upon as a man of unusual promise. His gynecological clinics and his didactic lectures are always well attended. The obstetrical cases are divided evenly between the German school, the Czechish and the school for midwives. This gives to each department about eleven hundred cases a year, as in the lying-in-hospital there are yearly about thirty-two hundred patients. I had remarked before making a visit to the maternity hospital that I had, in my three months with Chiari, seen no autopsy on a case of puerperal septicemia. On referring to this fact in my conversation with one of Rosthorn's assistants, who showed me through the wards, I was informed that in the past year, from July 1, 1893, to July 1, 1894, there had been no death from puerperal septicemia in over one thousand cases. A more practical illustration of the advantages of antiseptic midwifery could not be asked. This category of cases does not include any case entering the hospital with an already developed sepsis, or any case in labor where a vaginal examination has been made outside the hospital. Such cases known to be infected, or to be looked upon as possibly infected, are carefully isolated and kept apart from the aseptic cases. The year before there was one death from sepsis.

Students are present at all cases of labor and have the privilege of examining the patient. They come in small sections. For a week before they are to witness a childbirth, they are required to keep entirely away from the anatomic and pathologic anatomic rooms. That their presence and even their contact with the patients, where careful preparation of the hands, etc., is attended to, is not detrimental, is proven by the perfect result of last year in an experience with a thousand cases. The details of the aseptic and antiseptic precautions need not be gone into. Suffice it to say that all that modern knowledge concerning asepsis demands, is here rigidly complied with.

The Children's Hospital is really made up of two sections, one under Epstein, really an infants' or foundlings' hospital, where there is excellent opportunity for studying the diseases of the new born and the important question of infant feeding; the other the hospital for older children, under Ganghofner.

I was interested in listening to Ganghofner's remarks on diphtheria, in which disease he has had a wide experience in this hospital. No suspicious or questionable case is pronounced diphtheria without bacteriologic examination. Naturally most cases are quite readily recognized but here a bacteriologic examination is always made. All questionable cases are kept in observation rooms until the examination of the cultures reveals the presence of the Löffler bacillus or *vice versa*. This quarantine of about twenty-four hours works as can be readily seen with a double advantage. A child with a mild, unrecognized diphtheria does not come into a ward and infect other children free from the disease, nor does a child with a simple angina, a follicular tonsillitis so-called, become exposed to diphtheria by being placed in a ward with genuine diphtheritic angina. It is certainly time that all our modern hospitals had such observation rooms for suspected diphtherias. They would prevent much harm from being wrought to innocent and comparatively healthy patients.

Ganghofner's treatment of diphtheria may be briefly summed up as follows: Locally, a strong solution of corrosive sublimate or carbolic acid or tincture of the chlorid of iron applied with a brush. If gargles are used, or if there is any possibility of the solution being swallowed much weaker solutions are necessary. He also injects a few drops of a 5 per cent. solution of carbolic acid into the tonsil. He believes that this local treatment while not checking the disease *in toto*, does modify it in that the number of virile organisms is lessened, and therefore a smaller amount of toxine produced. He is extremely cautious about the local treatment of the nose by sprays, and particularly by douches, believing that he has seen several cases in which diphtheritic otitis media has been caused by the irritation of the Eustachian tube thus produced, and the extension of the inflammation up this canal to the ear. Iron, plenty of nourishment, alcohol in moderation, are recommended internally. Blood serum he has tried and with favorable results, though not in any great number of cases. In a case of impending laryngeal and tracheal stenosis through spread and growth of the membrane downwards, the disappearance of the membrane after the blood serum injections was little short of marvelous. The patient, however, died of cardiac failure. The autopsy revealed no remnants of the laryngeal membrane but a heart markedly fatty. The cardiac failure was looked upon as the result of the disease, and as brought about in no particular by the antitoxin. Mercurial ointment is regarded favorably in cases where the glands are much enlarged.

Intubation is the common procedure in cases of laryngeal diphtheria where stenosis is imminent. In private practice, however, Ganghofner does not consider it as applicable, because of the sudden emergencies that often arise through the coughing up of the tube or the blocking of the tube, by membrane or secretion, necessitating the prompt attendance of the physician. For hospital he regards this operation as preferable to tracheotomy.

I may say that while in Berlin I went through Bergmann's hospital in company with Dr. Murphy, of Chicago. We were shown the tracheotomy room and were told that the operation was one of daily occurrence there, and that for the past two years Bergmann had not allowed intubation in cases of diphtheritic laryngitis. Just the reasons for abandoning the intubation I do not know. The assistant told us that he himself had done in two months between sixty and ninety tracheotomies. Dr. Murphy remarked that we did not see in Chicago so many cases of diphtheria demanding operative interference as ten or fifteen years ago, either because the type of the disease had changed, or because it was better treated and laryngeal complications avoided. Certainly no such number of these cases as is met with in Berlin is seen in Chicago, either in private or in hospital practice.

Saturday, a week ago, I left Prag for Carlsbad, having a great desire to see this famous watering-place. It is a beautiful spot as regards its natural surroundings and has all that could be desired in the way of delightful walks, mountain climbs, drives, etc. Twenty-five thousand patients have already visited the place this summer and among them a large number of Americans. It is really a wonderful sight to watch the crowd at one of the popular springs, such as the Sprüdel or the Mühlbrunn. From 6 A. M. to 8 A. M. there is one constant stream of people. At 7, Sunday morning I saw a double line about two blocks long waiting patiently at the Mühlbrunn.

The efficacy of the Carlsbad waters in troubles of hepatic origin and in diabetes is attested by all German physicians with whom I have spoken. The manner in which the waters work is not clearly understood. One of the Carlsbad doctors told me that absolutely nothing was known as to how the amount of sugar was lessened by the Carlsbad treatment, in cases of diabetes. But he assured me that it was the rule for diabetes to be materially improved and for the sugar to lessen or even totally disappear in the course of a few weeks' treatment. That the change is not brought about by diet alone, is proven by the fact that a rigid dietary is not prescribed and, in many instances, the patient is allowed to eat what he wishes. Permanent cure of diabetes is not claimed

by the Carlsbad physicians. In cholelithiasis the good results are attributed, not to any chemic reaction causing the absorption of the stones, but to their mechanical expulsion through the common bile-duct into the duodenum. Patients suffering from gall-stones who have had perhaps occasional attacks of hepatic colic are almost sure, when drinking the Carlsbad waters and taking the baths, to have frequent, even weekly, attacks of gall-stone colic. Some, or all of the stones may, as the result of the increased peristalsis be expelled.

The physician from whom I learned these facts criticised quite sharply the too common practice of sending absolutely incurable cases to Carlsbad, cases that should be cared for at home. This, he said, was particularly true of carcinoma. Let a patient have carcinoma of the stomach, the liver or the pancreas and, if jaundice were present, he was promptly shipped to Carlsbad because, forsooth, Carlsbad was good for jaundice. From personal observation I know this to be true, for I saw a patient who had but a few hours to live, whose physician had sent him to seek the benefit of the waters for his jaundice, and whose Carlsbad attending physician had told the family of the malignant and incurable nature of the malady, too late for the poor man to be removed to his home, about one hundred miles distant.

While stopping at Nuremberg I made an excursion to Erlangen, fifteen miles out from the city and spent a most delightful forenoon with Strümpell. I found him a most charming man, affable, and very cordial in his reception of me, a total stranger who had naught save a visiting card by way of introduction. In his clinic his evident aim is to be a teacher. There is no attempt at display of great erudition, no dramatic presentation of cases. In the clinic which I had the pleasure of attending, he exhibited a case of cardiac valvular disease, peculiar in that, while the lesion was apparently a mitral insufficiency, the consequent hypertrophy was almost exclusively of the right heart. The questions of congenital lesions and of pulmonary stenosis were discussed and the diagnosis of mitral insufficiency was guardedly made.

The second case was one of myoclonus multiplex. The patient, a young adult male, strong, well developed, had for three years, been annoyed but in no way incapacitated for work, by the involuntary contractions of various muscles or parts of muscles. The case resembled those first accurately described by Friedreich as paramyoclonus multiplex. The pathology of the disease, so Strümpell said, was still unknown, though the seat of the lesion was probably, according to his view, in the cord or its cells. The case in hand was only unusual in that the muscles of the tongue were involved. The case was made useful to bring out the differential diagnosis between this disease and chorea in its various forms, multiple sclerosis, paralysis agitans and particularly hysteria. This latter condition Strümpell believed, explained some of the remarkable reported cases of myoclonus multiplex, especially those where there had been a sudden onset or a sudden cure.

After the clinic I spent a most enjoyable two or three hours in the wards with Strümpell. His rooms are old and he is obliged to treat some cases, *e. g.* gonorrhea, that he would probably gladly transfer to other departments. But in over one hundred beds, he always finds enough material that is interesting and instructive, and particularly as many cases of nervous diseases are sent to him from a distance. He had two cases of brain tumor in his wards, one a child *in articulo mortis*, and the other an adult where partial monoplegia with occasional spasm, headache, and choked disc were the main factors in leading to a diagnosis. In this case operation was advised. A case of Basedow's disease in which the enlarged thyroid gland had been removed, seemed at the end of a week slightly improved as regarded tremor and exophthalmus. That permanent good in this instance, or in similar cases, would result from thyroid extirpation, Strümpell was not prepared to say. Cases of multiple sclerosis, of carcinoma of the liver, biliary cirrhosis of the liver, amyloid kidney, etc., were shown, and I left Erlangen feeling that I had spent a most pleasant and profitable day in intercourse with one of the brightest medical minds of Europe. My day with Strümpell only served to enhance in my eyes the value of his text-book which I had already regarded as surpassed by no other book of the same scope.

I have seen here in Munich, Ziemssen, Bauer, Winckel and Bollinger, and hope in Heidelberg to witness the work of Erb and of Vierordt. If I can find time to spare from my clinical work and sight-seeing I will describe in my next letter my impressions of these men.

I may say here that Winckel retains pleasant memories of his stay in Chicago last year. He was particularly shocked and surprised to learn of the death of Dr. Charles Warrington Earle, and referred especially to the jolly time they had together at the banquet given by the Chicago gynecologists to Prof. Winckel, where Dr. Earle sat by the side of the guest.

It is, I believe, true of Winckel that his reputation as a specialist is as great in his own city as it is abroad. This certainly speaks well for him. For I have observed in not a few cases, that the names known favorably abroad are not those of the men with the greatest reputation at home. "A prophet is not without honor," etc.

JAMES B. HERRICK, M.D.

Etiology of Pneumonia.

CHICAGO, Aug. 8, 1894.

To the Editor:—The elaborate and valuable paper of Dr. Richter on the "Influence of Atmospheric Pressure on the Prevalence of Pneumonia," published in the JOURNAL for Aug. 4, 1894, I have read with great interest. One of the statements made by this writer requires explanation, that error may not be promulgated. I refer to that on page 189, second column, where it is stated that "Wells and Hirsch and every other writer on the subject discards air pressure as a causative factor." This would lead the reader to infer that the subject had been carefully investigated by these authors and that they had arrived at the conclusion that atmospheric pressure was not a factor in the etiology of pneumonic fever. Speaking only for myself I will say that in the series of articles to which Dr. Richter refers, expression has been given to the following opinion: "It may be affirmed, as a general proposition (to which there are many exceptions), that pneumonic fever will be found to prevail to a greater extent than ordinarily, the influence of season and epidemics excepted, when the daily range of temperature, humidity of the atmosphere, velocity of the wind, *range of barometer, amount of atmospheric pressure* and amount of ozone present in the air are greater than the average, and that it will be less prevalent when opposite conditions prevail. Again, it will be found that an excess of cases will be met with when the range of temperature is low, *the barometer falling* and the *ground water low.*"

These general and, it must be freely confessed, unsatisfactory statements are the conclusions derived, in so far as the italicized portions are concerned, from a study of the papers of Baker, Biach, Sanders, Juergensen, Purjesz, Seibert, Stortz and others and of a great mass of facts collected by myself. This last material it was found impracticable to analyze on account of its diffuse and contradictory nature and its bewildering extent. From it, therefore, only the impression above given could be extracted. It must be

clear, therefore that the influence of atmospheric pressure in the causation of the malady in question has not been totally discarded by me and that the meager consideration given it was due to a lack of knowledge rather than a lack of appreciation of the importance of the subject. On the contrary, my investigations were sufficiently extensive to profoundly impress me with the far reaching importance of the rôle played by this and other meteorological factors in the production of pneumonic fever.

Dr. Richter is to be complimented upon the general excellence of his paper and upon the industry displayed in its preparation. EDWARD F. WELLS, M.D.

ASSOCIATION NEWS.

Section on Neurology and Medical Jurisprudence.

At a meeting of this Section during the forty-fifth annual session of the AMERICAN MEDICAL ASSOCIATION the following preamble and resolutions were introduced:

DR. CROTHERS—Now, Mr. Chairman, I have here a resolution which reads as follows:

"WHEREAS, In view of the fact that the problems concerning the care and treatment of inebriates, have become of practical interest in every part of the country; therefore

"*Be it Resolved*, That we earnestly wish and advise the erection of a special asylum for the care and treatment of habitual drunkards in each State of the Union; also

"*Resolved*, That such asylums be organized as industrial homes where each person can be placed under restraint, treatment and medical care for a sufficient length of time to promise full restoration."

DR. GAVIGAN—I thought that there would be room for such an institution, and if it was advised by this Section, those who think well of such a movement would have some support in going before a legislative body asking for the appropriation of moneys for the purchase of a site, etc. It is hardly probable though that it would materialize in this State in the next year, or the year after, or the year after that, but still it might, in time, and there is nothing like agitation.

THE CHAIRMAN—The trouble with many of the public institutions we have now is the same as with the Washingtonian Home, located in Chicago. It is not a public place or home, and there is now litigation over the funds. In that institution they take the patients and give them a few wholesome lectures and then send them out, but there is no authority sufficient to keep them there long enough to correct their neurologic or neuropathic tendencies.

DR. HEISHOLT—That is where the trouble comes in, in regard to their incorporation. Generally speaking it is necessary to have laws regulating the detention of such people in any place of restraint. So with criminals. It is a farce here, looking at it from a legal standpoint. The criminal is adjudged insane, sent to an asylum and if he is considered well at the end of three or six months, the superintendent can not keep him; and if the superintendent wants to do what is right and keep him as long as necessary, the individual will have some friends who will get him out on *habeas corpus*. In New York there is a law, I believe, requiring that they should not be kept less than a definite period. There are not many States who have such laws, but there ought to be. With regard to asylums of this kind, I think the time is ripe for it here in California. We have a home for inebriates—I don't know whether you have read much about it—but it has been discussed in the papers here and criticised severely—I see patients from there every now and then; they are kept there one or two or three days or a week, and certainly the treatment is not right or proper.

THE CHAIRMAN—We have in the State of Illinois, in our State Medical Society, a committee on legislation. We have had that committee for a good many years and we are getting the people educated up to some pretty good laws. We have had some improvement in our legislation governing the commitment of the insane and we are getting little improvements every time the Legislature meets. We are working away at it vigorously and are quite satisfied with the results. But the doctors have to do it; the lawyers never will improve the laws. The more complicated the laws are, the better it is for the lawyers. As long as a lawyer can get a fee for *habeas corpus* in the case of an insane person in an asylum the laws will be continued. You must educate the people up to the proper standard.

DR. GAVIGAN—My idea in having this presented is that although we are a small body here this morning, yet at the same time the resolution adopted by this body is official and can be embodied in a petition to the next Legislature which will assemble in January. Now by going before that body, and having a bill properly presented and introduced—accompanying that bill would be a bill amending the laws to conform to the detention of inmates or proposed inmates in insane asylums—by agitation probably, as Dr. Heisholt says, we will get it in a couple of years or three or four years. As the Doctor says, there has been considerable in the newspapers about our local home. The question has been raised as to who owns it. Nobody can tell, and it is thought by some good lawyers that if a suit were brought it would escheat to the State. It was formerly originated by a Society organized here some years ago, and well known as the Dashaway Society. That society has disincorporated and there is no head. The directors seem to be supreme, the public has lost interest in it, and it brings ridicule upon the question of inebriety—people seem to ridicule and criticise it unfavorably. So I think if we have in this State an institution under the care of the State and looked after by the State officers, as our insane asylums are, it would be advantageous to the poor inebriates within the State and would probably lead to like establishments in other States. They have an institution of that kind in Massachusetts, I believe.

DR. CROTHERS—Yes. Patients are sent there for three years. It is an industrial asylum, working on five hundred acres of land. They have 150 people there now; every one is placed there for three years, and if they run away they are obliged to return. We have in our State (Connecticut) a law by which a man can come to my institution or any other, and commit himself for four months, by simply going in and asking to be received, and we hold him the same as a man in an insane asylum; if he runs away we have simply to ask the police force of the State to arrest him and return him, but within four months he has his liberty. But if the laws or the courts choose to examine into his condition as to habitual drunkenness, and determine that he is a habitual drunkard they can send him for three years, one at the institution and two years on parole. And supposing he goes out at the end of a year and relapses in the course of a month or two. He is returned at once, and then the three years continue from the time of the last lapse, so that some men may be under the control of the law forever.

DR. GAVIGAN—In England they have something equivalent to that.

DR. CROTHERS—Yes, but you have to go before a magistrate and certify that you do this of your own free will, and there is so much voluntary requisition on the part of the patient that they rarely ever do it. However, that is to be amended very soon. The Massachusetts law is a very good one and the institution is a valuable one and has a great future before it; and the intention of that institution and of

some of these others is to take up the men who are now repeaters in jails and prisons and under sentence for a short or long period and save the expense of repeatedly sentencing them. It costs from $25 to $50 every sentence—court fees and admission fees, and all that sort of thing. The idea is to sentence them once for such a length of time that they are not likely to get out and repeat the offense again. In our State we have a law and an institution organized but there is no public institution—no public industrial hospital, simply because we have been opposed by the temperance people. They deny the possibility of those people being sick and diseased and say it is a moral trouble entirely.

DR. HEISHOLT—There are two classes of people who are insane; epileptics and alcoholics, and in regard to the former a great deal has been done. There is an institution in Ohio, established about two years ago, a colony so-called—an epileptic colony. And now in New York it seems the scheme of Dr. Paterson is going to be realized. Now if that has been done for epileptics why couldn't the same be done for alcoholics? The trouble is that alcoholics while in the asylum have considerable control of their faculties, and they are so restless on account of their nervous condition that they bring about a similar restlessness in the others.

THE CHAIRMAN—We are getting things in shape in Illinois for the establishing and founding of an epileptic colony, and I should not be surprised if our next Legislature would do something towards the establishment of such a colony.

DR. HEISHOLT—I think I have over fifty epileptics in our institution, and I would say that 90 per cent. of all the fights are brought on by epileptics. Just as you say there is always a woman at the bottom of a scandal on the outside, there is always an epileptic at the bottom of those fights in the asylum.

DR. GAVIGAN—I suppose that if you have that many in Stockton, Napa has probably a good many also.

DR. HEISHOLT—Yes, about the same proportion but they have two hundred people less. They should have about thirty I should judge, and Agnews probably would have twenty. That would be one hundred in all.

The CHAIRMAN—Our object for establishing this colony for epileptics in Illinois is not only to take epileptics who are called insane, but to take independent epileptics generally and see if we can not do something towards improving their condition, to take those who are in the almshouse and elsewhere throughout the State and those who are cared for in their own homes, and see if something can not be done towards their cure as well as their care. That is the idea we are to take up, and I wouldn't be surprised if your Legislature did something this winter. We are getting our people educated up towards the proper appreciation of this thing.

DR. HEISHOLT—We have an institution in this State known as the Home for Feeble-Minded Children, in Glen Ellyn. The institution there is not an epileptic colony in the proper sense, because idiots and such cases are in there, but still it is better than nothing, only that the institution is a small one. You see we have at least one hundred in our State asylums that should be up there but they haven't room for them.

DR. CROTHERS—There is one pleasant feature about this whole thing. To push a theory is one thing and to push it against public sentiment is another. Here is the fact of the tremendous losses that follow from the alcoholic habit; and the fact that the railroad companies refuse to employ a man who is a moderate drinker is doing immensely more for us than all the preachers. We are just now on the verge of a great revolution in that way, a revolution that is founded on absolute necessity. Men refuse to employ alcoholics in their business, no matter how much genius there is, and the public recognize the tremendous losses they suffer, and hence they are going to urge that a new method or a new means be employed to restrain that terrible evil.

THE CHAIRMAN—It was that public sentiment that made Keeley's institute a success—reaching out for something to check this evil. Keeley could not have been a possibility ten years ago.

DR. HEISHOLT—Speaking about railroad companies you might speak of life insurance companies. Life insurance companies within the last few years have made a clause as to that. I insured myself in a company here recently and a friend of mine did the same. Well, I rarely touch liquor. If I do, it is once in two or three months when I am in company with some one, but I could just as well abstain altogether. But my friend is a little different, and he was going to give up the life insurance policy on account of this clause, which is that if the policy holder should at any time take to drinking and that his death should have some connection with this habit that may develop, he would lose his claim to that policy.

DR. GAVIGAN—This State in 1882 by an overwhelming vote voted against what was known as sumptuary legislation, and in the last gubernatorial contest the prohibition party got about ten thousand votes. There is something behind that. Look at the next prohibition vote and see what will be the increase of votes. It is not prohibition which is doing it, but it is the wreck of alcoholism that is doing it. They had a temperance congress here some time ago, in connection with the Midwinter Fair, and two days afterward the liquor men of the whole State met for protection

DR. CROTHERS—I had an article in the *Public Science Monthly* for June. Dr. Appleton Morgan wrote an article in the March number entitled, "Does Prohibition Prohibit?" showing that prohibition did not decrease but rather increase the drinkers. My article was in reply. He is a very good man but evidently under the influence of the beer men. It is most extraordinary the statements he has made; for instance, that there was no prohibition until 1832. The fact is, prohibition has been going on in the country since 1640, soon after the settlement of this country, when they began the prohibition of the sale of liquor to Indians and minors, and on Sundays. I have made clear the idea that if it is true, our theories concerning alcohol are true, and are borne out by future experiments, that alcohol is a depressing agent, prohibition is bound to come whether it is urged by a party or anything else. And it won't be a question whether prohibition prohibits or anything of that kind, but we will take up the alcoholic question the same as we take up the question of polluted springs, or any other such question of public importance, and we will abolish saloons the same as we do pest-houses.

BOOK NOTICES.

Transactions of the Association of American Physicians. Ninth Session, held at Washington, D. C., May 29–30, 31 and June 1, 1894. Vol. ix. Philadelphia. Printed for the Association. 1894.

This volume, which has been issued with commendable promptness, contains the minutes of the meeting, list of officers, honorary members, and members; the constitution, and twenty-four papers read at the meeting. We learn from the minutes that there were seventy-two members present, and we are pleased to note that an examination of the list shows that about one-half of them are active members of the AMERICAN MEDICAL ASSOCIATION. The papers have, we believe, all been printed in the several medical journals during the year.

The interesting address of the President was published in this JOURNAL with editorial comments June 9, 1894.

The volume is an instructive one. Many of the papers are contributions of permanent value to the medical literature of the period, and it is a great pity they were not read to the larger audience of the great ASSOCIATION.

PUBLIC HEALTH.

A Notable Precedent.—The Toronto courts have recently had the question of the contagiousness of consumption before them. A health officer had demanded the exclusion from school of a child suffering from tuberculosis and his action led to legal proceedings. The judge sustained the action of the health officer, deciding that the disease is contagious.

Smallpox in Milwaukee.—Under date of August 18, Dr. U. O. B. Wingate, Secretary of the Wisconsin State Board of Health, thus summarizes the smallpox situation in Milwaukee: "At present the city is orderly and everything is being done that can be done to control the outbreak. There are at present about fifty-five cases in the city. There have been 31 deaths out of 121 cases reported up to this date. A large corps of physicians are vaccinating from house to house, extra barracks are being erected, in order to relieve the hospital which is now full. Two sets of inspectors are on at the depots, one for day and one for night service; also at the steamboat wharves, doing everything possible to prevent suspects, or those coming from infected districts, from leaving the city. The railroad authorities and boards of health in the adjoining towns to the city are coöperating to prevent all such persons from boarding the trains at those points."

Need of Sanitary Organization.—In a recent address before the Cleveland, Ohio, Medical Society, Prof. William Pepper recalled that when the International Medical Congress met in Philadelphia in 1876, the address on "Hygiene and Preventive Medicine," delivered by the distinguished Bowditch, himself a pioneer in sanitary science, was one of the most impressive utterances on that important occasion. The review he gave of the work of the previous century in this country in sanitary science was not flattering; but with the fine enthusiasm which marked that gifted man he predicted the immediate opening of the grandest epoch yet seen in the history of medicine. His closing appeal must be quoted: "Our present duty is organization, national, State, municipal and village. From the highest place in the national council down to the smallest village board of health we need organization. With these organizations we can study and often prevent disease." Much had been accomplished, it is true, in preventive medicine before 1876, when Bowditch spoke; but it is scarcely an exaggeration to say that the progress in the past twenty years has been greater than in the preceding twenty centuries. And yet the need of sanitary organization and of adequate sanitary legislation is still a pressing one. Sanitation by "bluff," or by tolerance, or at best by individual effort, is still too frequently the rule in many communities and commonwealths. Only thorough organization can secure the legislation necessary to make public hygiene really a science and not an intermittent and unreliable rule-o' thumb procedure.

A Minister of Public Health.—There is a demand on the other side of the water, also, for a more signal recognition of the transcendent importance of public hygiene and State medicine, by the creation of the office of Secretary or Minister of Public Health. In his address at the recent meeting of the British Medical Association, on "Sanitary Science and the Prevention of Zymotic Disease," the veteran sanitarian, Sir Charles Alexander Cameron, regretted that medical men, even from a public health point of view, play a very subordinate part in the functions of government in Great Britain—only one, Sir Walter Foster, occupying a position which gives him a direct share in the administration of any great department; and only two of the 250 Privy Councillors having medical qualifications, Lord Playfair and Prof. Huxley. Prof. Cameron points out that in Germany medical men are constantly appointed Privy Councillors; that the government of that empire is largely in the hands of those who possess the highly prized titles of Professor and Doctor; that the Prime Minister of Hungary is Dr. Alexander Wekerle; and adds that: "As the present tendency in the social world is the upheaval of the lower strata of society towards its 'upper crust'; as the working man has become a senator, and mechanics are being metamorphosed into justices of the peace, we may hope soon to find some of the members of our profession following in the wake of Sir Walter Foster and taking high places in the executive government of the country. Hitherto we have only been permitted to suggest measures for the promotion of the public health; it is time that we should have a more direct influence in sanitary legislation and in the administration of the sanitary laws. There are many medical men eminently fitted by their culture, experience, and ability to hold the office of Minister of Public Health—aye, even with a seat in the Cabinet!"

Extension of Cholera.—Recent advices of the western extension of cholera in Europe are less reassuring. There are conflicting reports as to the situation in Russia, but in the other infected countries, from which information is less trammelled and more trustworthy, the disease is known to be spreading. North-eastern Austria is completely in the grip of the epidemic and the German Cholera Commission has been again convened in order to consider the serious news that the scourge has not only spread to East and West Prussia, but that genuine cases have been found at Cologne. In East Prussia the new towns affected are Johannisburg, where there have been over fifty deaths, and Lyck and Allenstein; in West Prussia, Althof and Thorn are among the towns where cholera now exists. In the Low Countries, Holland and Belgium, the infected area is undoubtedly increasing, but the disease appears to have died out in the localities hitherto reported infected in France. Following upon Dr. Klein's confirmation of the diagnosis of Asiatic cholera on the *Balmore*, which arrived from St. Petersburg at Gravesend on the 7th, with one fatal and four other cases on board, came the discovery of the disease in London itself—eleven cases, with two deaths, being announced on the 20th in the Battersea district on the Surrey or south side of the Thames. It is learned that the disease was brought from Amsterdam by seafaring men who had arrived within the fortnight, but some of the victims were natives of the district. The Local Government Board and port sanitary authorities, it is reported, though not taken by surprise, confess to some chagrin and are exercising every precaution at exposed points. The restriction of cholera by purely sanitary preventive measures is likely to be as severely tested again in England as at any time within the previous years of the present pandemic.

Startling Propositions.—The full bench of the Massachusetts Supreme Court, in a decision rendered June 20, ult., announces certain propositions which imply a condition of statute law which can not be too soon remedied in the interest of individual and of public health. These propositions are, in effect, that a landlord is not legally bound to inform his tenants at will of sanitary defects in the drain of the house; neither is he liable to the tenant at will in a suit for damages for negligence in not acquainting such tenant of defects in the drain which arose during the course of the tenancy, even where the condition of the drain caused one of the occupants to take typhoid fever and die. The suit which developed these monstrous propositions was brought by Mrs. Julia Bertie, administratrix of the estate of John Bertie, intestate, against Hiram P. Flagg. She alleged that

the defendant was the owner of the house 76 Poplar Street, and her intestate was a tenant at will of the premises; that in the course of making other repairs the defendant discovered that the drain was in bad condition and needed certain repairs; that he neglected to repair it, covered it up, and did not inform her intestate, and that "by reason of said negligence . . . the plaintiff's intestate, being ignorant of the condition of said drain, contracted typhoid fever" from it. The Court says that "this defect was an ordinary defect in the drain in use on the premises, and the danger was the ordinary danger from that source. It was discovered in the course of a tenancy at will. We are of the opinion that the landlord was under no obligation to repair it, and if we are to take it that the plaintiff was ignorant of the defect as well as of the failure to repair it, notwithstanding the allegation that the defendant refused to make the necessary repairs, we are of the opinion that he was under no obligation to disclose it." If this be the law in Massachusetts, or elsewhere, it behooves State Boards of Health to secure prompt correction of such legal condonation of crime against the sanitary interests of tenants.

NECROLOGY.

JOHN SEATON, M.D., of Fort Wayne, Ind., August 17. He was a member of the G. A. R. and Union Veteran Legion. He was a prominent Mason and Knight of Pythias.——W. P. Foster, M.D., of Warsaw, Ind., August 17. Aged 50.——David F. Urmy, M.D., of Gowanda, N. Y., August 17. He was formerly Attorney-General for the State of Colorado.——Stephen G. Risley, M.D., of Rockville, Conn., August 2. Aged 74.

MISCELLANY.

Should be Elected.—Dr. Charles A. Wells, of Hyattsville, Md., is spoken of as a candidate for Congress to fill the unexpired term of the Hon. Barnes Compton.

Death of the Leprologist, Danielssen.—The death is announced of Dr. Daniel Cornelius Danielssen, Chief Physician to the Bergen Leper Hospital, eminent for his lifelong researches on leprosy.

Ills of Body vs. Faults of Soul.—The following ingenious illustration tends to show how more important medicine is than psychology:

"Some man says that when one reads a medical book he fancies he has every disease described, but when he reads the work of a moralist he discovers all the faults it points out in others."—*Montreal Star.*

Inexpert Dentistry.—The Dental Society of New York City has recently undertaken to prosecute an amateur dentist. A compounder of patent medicines advertised a remedy for toothache. He was consulted by a poor woman. Instead of applying his drops, Johnson undertook to extract her aching tooth and in so doing broke off two teeth. These broken teeth have been the source of much suffering to the woman. The facts in the case were not long after brought to the notice of the Society above referred to, and the counsel of that organization has been ordered to proceed against the inexpert dentist, for a violation of the laws governing dental practice.

Hygiene of Sports.—The schematic program of the division of Hygiene in the Buda-Pest Congress of Hygiene and Demography, which begins next Saturday, is very elaborate. It embraces the following sections: 1. Etiology of Infectious Diseases. 2. Prophylaxis in Epidemics. 3. Hygiene of the Tropics. 4. Hygiene of Trades and Agriculture. 5. Hygiene of Children. 6. Hygiene of Schools. 7. Articles of Food. 8. Hygiene of Towns. 9. Hygiene of Public Buildings. 10. Hygiene of Dwellings. 11. Hygiene of Communication. 12. Military Hygiene. 13. Red Cross. 14. Saving of Life. 15. State Hygiene. 16. Hygiene of Sports. 17. Hygiene of Baths. 18. Veterinary. 19. Pharmacology. The first topic under "16. Hygiene of Sports," reads as follows: "Different kinds of traveling and their influence upon the nerves and the formation of blood. Wedding tours."

Prophylaxis of Suicide.—Are gouty and rheumatic subjects less frequently the victims of suicide than those of the opposite diathesis? Statistics on this point are needed to complement the theory that the relation of mental depression and suicide to temperature is that of the effect of temperature on urate excretion. Alexander Haig, who has devoted much time to the study of this subject, now claims that his researches show an annual fluctuation in the excretion of uric acid, with its maximum in the warm months, April to July, and its minimum in the cold months, November to March; and he had previously demonstrated that an excess of uric acid in the blood causes high arterial tension profoundly affecting the intra-cranial circulation. Applying these deductions to the recent epidemic of suicide in France, coincident with the onset of hot weather, he finds the relation very interesting—"because it is just with the onset of the heat and the first great fall in the acidity of the urine that the great rush of stored uric acid into the blood will take place. Then, again, 6 A.M. to 12 noon—the most frequent time for the fatal act—is also just the time of the largest daily excretion of uric acid—*i.e.*, the time when there is most of it passing through the blood—and the facts I have collected will, I think, fully bear out this observation." The prophylactic lesson of which is, to those of suicidal tendencies: Keep the renal secretion acid and the blood alkalin.

Reminiscences of Hyrtl.—A correspondent of the *Lancet* furnishes some reminiscences of the late Prof. Hyrtl the famous anatomist who has just died in Vienna. His sympathy with student life is well known, and many stories in this connection are told of him. A Jewish medical student named Jerusalem was being examined, and in the hall there was waiting a small crowd of his co-religionists, when Hyrtl came out from the examination chamber. He was immediately surrounded by the crowd of young students, who asked him the fate of their comrade Jerusalem. Hyrtl, with a plaintive voice and sympathetically shaking his head, said, "Weep, O Israel; Jerusalem has fallen." Once a student was unable to reply to one single question at his examination. Hyrtl then asked him, "Perhaps you can tell me where you live?" The student named the street, of which Hyrtl professed his ignorance, and said: "You see how science is divided; you know nothing of anatomy and I do not know the locality where you live." An anecdote respecting his marriage is worth repeating. It was in the year 1866 when one day Hyrtl approached the porter of the Anatomical Institute, Andrew Swetlin by name. "Andrew, have you a prayer-book handy?" asked Prof. Hyrtl. Andrew fetched the book, and Hyrtl went away. An hour later he returned and handed to the porter the prayer-book. The porter, unable to suppress his curiosity, asked: "You do not need it any more, Sir?" Whereupon Hyrtl replied: "No, thanks; I only needed it for a moment. I have just been at my own wedding."

Man Growing Lazier.—Man grows more and more lazy every year. He is living in a machine age, when his walking and his climbing, if not his eating, are done for him by some mechanical invention too obvious to be recorded. If it were not for the athletics and gymnasiums, it is believed the race would lose the use of its legs, as scientists say it is losing its jaws and its teeth from too much civilization. Men who used to skip up the long flights of stairs of downtown buildings without a murmur now complain if they are asked to walk up one. And it isn't age, either, for boys in their teens will "wait for the elevator" an hour rather than give their legs needful exercise. The result of so much level action would be horrid was there no bicycle in existence. But the wheelman goes "up-stairs" for hours and says not a word when there is a saddle under him. It may be this universal wheel is the real cause of the present indolence. On some new principle developed by this popular motion

otherwise able-bodied citizens now refuse to live in houses with high stories and no "lifts," and kick at any "steps" over or under any railroad tracks. In short, there are people who would rather risk their lives than have the grade changed on a road they would be in the habit of crossing.—*Boston Herald.*

Non-Expert Opinions on Questions of Health.—There are many cases, says the Supreme Court of California, in the recently decided case of Robinson v. Exempt Fire Co., where a witness, though not an expert, may be permitted to state the result of his observation, notwithstanding it involve in a sense his opinion or judgment, such as the apparent state of health of a person, whether a person is drunk or sober, or other characteristic or state which manifests itself to the apprehension of the common observer. It is sometimes difficult to distinguish between that which is purely matter of opinion, and so not admissible, and that which partakes of the nature of a fact by reason of being the result of personal contact and observation by the witness, but this difficulty does not in any sense militate against the rule. There are many matters of importance to the investigation of truth that could not be established or presented to the jury if this were not the rule. Here, a witness, who knew a certain person quite intimately, and saw him frequently, and had conversations with him about his health during a period when it was in question, was asked this question: "Well, now, when you saw him on these occasions walk along, when he noticed you, was he or was he not apparently well?" This the court holds was competent. True, it says, the question tended to elicit the opinion of the witness, who was not an expert; but it called at the same time for the fact of the physical appearance of the person referred to, as a result of the witness' observation, and that fact the party was entitled to lay before the jury.

Abatement of Nuisances by Boards of Health.—The Court of Chancery of New Jersey holds, in the case of Board of Health of North Brunswick Township v. Lederer, decided June 5, 1894, that where it appears that the odors and gases from an establishment, of the nature of one for fat-rendering, produce headache, nausea, vomiting, and compel citizens to close their doors and windows, both by day and at night, and interfere with them in the enjoyment of their meals and of sleep, such establishment is a nuisance; and it is the duty of the boards of health, in such cases, to take proper measures for their abatement. Furthermore, the board of health in the township in which a nuisance exists, or is carried on, has the authority, and it is its duty, to abate such nuisance, either on its own motion, or by the aid of the court, though it is only hazardous to the health of individuals residing in another township. Carrying on an offensive trade for twenty years in the same place, remote from buildings and public roads, does not entitle the owner to continue it in the same place after houses have been built and roads laid out in the neighborhood, to the occupants and travelers upon which it is a nuisance. In such cases, prescription, whatever the length of time, has no application. Every day's continuance is a new offense, and it is no justification that the party complaining came voluntarily within its reach. It was earnestly insisted in this case that the persons affected by the odors emitting from the establishment in question were in feeble condition of health by nature, or of abnormal physical characteristics; in other words, possessed of some idiosyncrasy which cast them beyond the protection of all laws of a general nature, or which are enacted for the public welfare. With regard to this, the judge, who delivers the opinion of the court, says that he thinks that the utmost use which can be made of this argument is in reference to persons that are peculiarly sensitive to odors or sounds, and which affect them seriously, and in a radically different manner from which they do the great mass of individuals; it being quite difficult, if not impossible, for the law to provide adequate safeguards against all the imaginary ills which arise in the minds of eccentric or those of morbid habits or tastes. But this condition of mind or body must be established by clear proof. It can not possibly have reference to that large class, in every community, that are less robust, or are more feeble in body, or less capable of resisting deleterious influences from without, than many, or, it may be, a majority, of their neighbors. All citizens are presumed to enjoy a normal condition of mind and body, until the contrary is clearly shown.

Korean Native Medicine Atrociously Harsh.—Dr. R. S. Hall, of Seoul, has written to the *Chinese Recorder* some instances of the atrocities practiced in Korea by the native medicine man. Some of these cases have fallen directly under the writer's observation, and are not taken at "second-hand." The following is a part of Dr. Hall's statement:

"This year, for the first time, I saw one of them at his work, and I will try to tell you about it. I was called one day to the house of one of the higher class to see a child who had become very sick two or three days before, after being carried a long distance, strapped to the back of his nurse, as is their custom, his bare head and the nape of his neck exposed to the fierce heat of a July sun. I found him in convulsions, and after careful examination I told the father I feared there was little or no hope of his recovery. Both father and mother bowed before me and begged me to 'give life,' as they express it here. I told them only God could do that, but we would do all that we could, and I left them medicine and the necessary directions, with the promise to return in the morning. Now this child was the only son of these people, and their love for him was just as strong as that of fond American or English parents, and like them they wanted to leave nothing undone that could be done for their darling. They had sent for the Korean doctor before they called me, and when they saw the child surely growing worse they thought they would try the foreign doctor, but now as morning dawned and no improvement was visible they again sent for the Korean doctor, who arrived shortly after I did. It was evident that the child was moribund, and I so told the father. Then the father bade the Korean doctor to again try his skill. The first thing this doctor did was to make a little pyramid of a brownish-looking powder upon each breast of the child, and then to set it on fire; as it began to burn the tender skin I begged the father to have it removed and I said to the doctor, 'You know it can do no good,' but he only calmly smiled, as he obeyed the now almost frantic father to go on with his treatment. He then took out from its sheath a needle halfway between a darning-needle and a surgeon's probe in appearance, and this he proceeded to stick through each little foot, through the palms of the hands, the thumb joints, and through the lip into the jaw just beneath the nose. Again I tried to make him stop, but he said it was 'Korean custom.' I replied, 'It is a very bad custom,' and that though in this case it would result in no further harm, as the child was dying, yet it was exceedingly cruel, and in cases where recovery from the disease might occur inflammations of these punctured joints were sure to follow, and often suppuration with death of the bones, so that amputation of the foot or hand is the only radical cure—that many such cases had come to me at the hospital. The child died not long afterwards."

Strawberries as Food and Medicine.—In *Medical Classics* we find a condensation of the wisdom of the ages, in regard to this luscious berry, the *avant courier* of all the summer fruits.

"Those persons are easily numbered who disagree with the opinion of Dr. William Butler of Suffolk, England, who stated long ago that 'doubtless God could have made a better berry than the strawberry, but doubtless God never did!' The saying is found in Walton's 'Angler,' quoted from Dr. 'Boteler' or Butler. It made the Doctor famous, and early in this century, the head of the author was painted upon the signboards of English inns.

"In the Privy Purse Expenses of Henry VII., under June 30, 1493, a woman receives 1*s.* 8*d.* for bringing the King cherries and strawberries.

"In the time of Henry VIII. (1530) we read of the King buying a pottle of strawberries for 10*d.* The pottle, in which

strawberries used to be sold, goes back to the fifteenth or even the fourteenth century.

"The great philosopher Bacon, in his 'Sylva Sylvarum' (1627), seems to prefer the white strawberry to the red, just as he does the white currant, white raspberry, and white grape. The white, or rather pink, strawberry is very common in Ireland.

"The strawberry and raspberry, the latter under the name of the hindberry, occur in the eleventh century vocabulary as *an herb*.

"The common word strawberry (*fragaria vesca*) is indigenous in almost all temperate climates. It grows in woods and thickets, and the fruit is small, but of a delicious flavor. The products which have been obtained by cultivation rank among the choicest and most tempting summer fruits, and afford an example of one of the greatest triumphs of the gardener's art.

"Jolly old Dr. Butler would now view with astonishment the large brilliant specimens that are produced. The wonder would not be less should he test the quality of the splendid fruit, and he might be led to exclaim: 'O delicious sweetness, where hast thou fled!' But we are not disposed to quarrel with the grower who has enlarged the proportions at the expense of the saccharin element. The whiteness of the sugar granules is a pleasing contrast to the color of the fruit, and the loss to the palate is a gain to the organs of vision, as well as the sugar trust. The flavor is diffused through a larger mass, and is not so pronounced as formerly, but, with cream, the berries are delectable enough to render their mastication a pleasure, however so many times the fruit is presented. While contour, color and aroma are unimpaired, the globose receptacles will be held in high estimation. These are not in their best estate except when fully ripened upon the vines and eaten soon after being gathered. Sugar scattered over them is destructive to form and brightness, if the added sweetness long precedes the serving.

"No method of eating strawberries can surpass that of eating them with cream.

"The Spaniards have another noble combination—moistening the strawberries with the juice of a sweet orange. There are gastrologers who go further and say that with the addition of orange-peel (by grating), the flavor with a lump of sugar is an immense improvement; and that it must have been in this fashion that the fruit was served in the banquets of Mount Ida.

"A century and a half ago the strawberry had quite a place in the *Materia Medica*. Even in more recent times it held some of its earlier prestige as a remedial agent. Abercrombie says:

"'Physicians concur in placing strawberries in their small catalogue of pleasant remedies. They dissolve the tartarous incrustations of the teeth; they promote perspiration. Persons afflicted with the gout have found relief from using them; so have patients in cases of the stone; and Hoffman states that he has known consumptive people cured by them.'

"The illustrious Cullen (1789), however, takes issue with the claim that they are curative in gout. He says:

"'If the large annual sale of *strawberries* could preserve from the gout, we should seldom find the inhabitants of Edinburgh affected by that disease; but, though they use that supposed preservative very largely, we find them as often and as severely affected with the gout as the inhabitants of other places who do not use the same.'

"In 'The Complete English Dispensatory' of 1729, we read that 'this plant is too well known to want description; the leaves are frequently used in gargarisms for sore mouths, quinsies, and ulcers of the throat, and the fruit is moderately cooling and cleansing, chiefly by urine.'

"According to the 'Edinburgh Dispensatory' of 1769, 'The leaves are somewhat styptic and bitterish; and hence may be of service in debility and laxity of the viscera; and immoderate secretions, or a suppression of the natural evacuations, depending thereon. They are recommended in hemorrhages and fluxes; and likewise as aperients in suppression of urine, obstructions of the viscera, in the jaundice, etc. The fruit is in general very grateful both to the palate and stomach; like other fruits of the dulco-acid kind, they abate heat, general thirst, loosen the belly and promote the flow of water.'"

Hospital Notes.

BEQUESTS TO HOSPITALS IN NEW YORK CITY.—Under the will of Mrs. Mary Stuart, the Presbyterian Hospital has received the sum of $220,000. Other hospitals, dispensaries and societies having a medical dependency receive a total sum of over one and one-half million dollars. The entire value of the estate is not far from five millions, of which four-fifths are devoted to charitable and educational objects.

HOSPITAL OF SISTERS OF MERCY, ST. LOUIS.—The Sisters of Mercy, of St. Louis, Mo., are to enlarge their hospital with a three story brick structure to cost $15,000.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from August 11, 1894, to August 17, 1894.

Capt. WILLIAM J. WAKEMAN, Asst. Surgeon, is granted leave of absence for one month, to take effect upon the completion of his present duty at the Ft. Thomas Rifle Range, Ky.

Capt. EDGAR A. MEARNS, Asst. Surgeon, will be relieved from duty with the commission appointed for the location and marking of the boundary between Mexico and the United States, and ordered to Ft. Myer, Va., for duty, relieving Capt. JOHN L. PHILLIPS, Asst. Surgeon. Capt. PHILLIPS, on being thus relieved, is ordered to Ft. McKinney, Wyo., for duty at that post, relieving Capt. GEORGE E. BUSHNELL, Asst. Surgeon. Capt. BUSHNELL, on being thus relieved, ordered to David's Island, N. Y., for duty, relieving Capt. SAMUEL Q. ROBINSON, Asst. Surgeon. Capt. ROBINSON, on being thus relieved, ordered to Philadelphia, Pa., for duty as attending surgeon and examiner of recruits.

Major CURTIS E. PRICE, Surgeon, upon the expiration of his present leave of absence, is ordered to Ft. Supply, Oklahoma Ter., for duty at that station, relieving Capt. WILLIAM H. CORBUSIER, Asst. Surgeon. Capt. CORBUSIER, on being relieved by Major PRICE, is ordered to New York City, for duty as attending surgeon and examiner of recruits, relieving Capt. WILLIAM C. SHANNON, Asst. Surgeon. Capt. SHANNON, on being thus relieved, will report in person to Col. G. H. ALDEN, Asst. Surgeon-General, President of examining board, for examination for promotion.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending August 18, 1894.

Medical Inspector EDWARD KERSHNER, ordered as fleet surgeon, North Atlantic Station.

Surgeon L. G. HENEBERGER, ordered to Marine Rendezvous, New York.

Surgeon N. H. DRAKE, from Marine Rendezvous, and to receiving ship "Franklin."

Surgeon B. S. MACKIE, from the "Franklin," and as fleet surgeon, European Station.

Asst. Surgeon C. T. KINDLEBERGER, ordered to Naval Laboratory and Department of Instruction.

Medical Inspector T. N. PENROSE, from Norfolk Hospital, and to special duty repairing and renovating New York Hospital.

Medical Director C. J. CLEBORNE, from Naval Hospital, Chelsea, and to Naval Hospital, Norfolk.

Medical Director A. A. HOCHLING, from special duty, Washington, D. C., and to Naval Hospital, Chelsea, Mass.

Medical Director B. H. KIDDER, ordered to report to chairman of Senate Committee investigating Ford Theater disaster.

LETTERS RECEIVED

(**A**) Atkinson, Wm. B., Philadelphia, Pa.

(**B**) Bloodgood, Chas., Clinton, Iowa; Burnet, Anne, Wausau, Wis.; Barbour, L. P., Montcagle, Tenn.; Batten, Geo. M., Pittsburg, Pa.; Bacon, C. S., Wood's Hall, Mass.

(**C**) Coe, H. W., Portland, Ore.; Cutter, E., New York City; Cannaday, C. G., Roanoke, Va.

(**D**) De Courcy, J. O., St. Libory, Ill.; Defrees, H. J., Nappanee, Ind.; Drevet Mfg. Co., New York City; Daggett Table Co., Buffalo, N. Y.; Davis, George S., Detroit, Mich.; Duffield, S. P., Dearborn, Mich.

(**F**) Foster, Burnside, St. Paul, Minn.; Fenton, T. H., Philadelphia, Pa.; Ferguson, A. H., Chicago, Ill.; Foote, A. E., Philadelphia, Pa.; Foster, A. B., Fonda, N. Y.

(**H**) Herrick, J. B., London, England; Holmes, Bayard, Chicago, Ill.; Holmes, H. R., Portland, Ore.; Hammond, W. A., Washington, D. C.; Hummel, A. L., Philadelphia, Pa.

(**K**) Kollock, C. W., Charleston, S. C.

(**L**) Lamb, E. E., Republic, Mich.

(**M**) Millard, P. H., St. Paul, Minn.; Mitchell, J. H., Cohoes, N. Y.; Murphy, R. W., San Francisco, Cal.; Montgomery, D. W., San Francisco, Cal.; The Epidemist Co., Indianapolis, Ind.

(**N**) Nicholson, W. T., Pittsburg, Pa.; Newman, H. P., Chicago, Ill.

(**P**) Prather, D. J., Little Rock, Ark.

(**R**) Robinson, F. Byron, Chicago, Ill.; Ransohoff, Joseph, Cincinnati, Ohio; Regensberger, Martin, San Francisco, Cal.

(**S**) Sanders, Enno, St. Louis, Mo.; Stokes, W. H., Toronto, Ohio; Smith, M. B., Minneapolis, Minn.; Stair, N. P., Ft. Atkinson, Wis.; Scott, N. C., Cleveland, Ohio; Stoner, Geo. W., Baltimore, Md.; Shawgo, J. B., Quincy, Ill.; Still, D. V., Johnstown, N. Y.

(**T**) Tracy, E. A., Boston, Mass.; Tiffany, F. B., Kansas City, Mo.; Taylor, L. H., Wilkes-Barre, Pa.

(**V**) Vetter, J. C. & Co., New York City; von Klein, Carl H., Cleveland, Ohio.

(**W**) Weidmann, F. E., Terre Haute, Ind.; Wilber, Geo. D., Mineral Point, Wis.; Wyckoff, R. M., Brooklyn, N. Y.; Wells, W. H., Chicago, Ill.

PAMPHLETS RECEIVED

Abdominal Surgery on the Battle-field. By N. Senn, M.D., Ph.D., LL.D., Chicago.

The Bristol (England) Medical Society. Annual Meeting, 1894.

Two Cases of Unclassified Infection. By W. F. Arnold, M.D., P. A. S., U. S. N., Sacramento.

Some Observations on Gonorrhea in the Male. By W. F. Arnold, M.D., P. A. S., U. S. N., Sacramento.

Cremation as the only Sanitary Method of Disposing of the Dead. By W. F. McNutt, M.D., San Francisco.